Ontario
Division of Mines

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ANNUAL REPORT
# of the
REGIONAL AND RESIDENT GEOLOGISTS

1974

Edited by
E. G. Pye

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ONTARIO
MINISTRY OF NORTHERN DEVELOPMENT
AND MINES
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1975

MINISTRY OF NATURAL RESOURCES

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PREFACE

For administrative purposes, the Province is organized into eight regions by the Ontario Ministry of Natural Resources, each managed by a central regional Ministry office. Technical support and guidance are provided by the Geological Branch through the Regional and Resident Geologists' Technical Committee chaired by the Chief of the Geoservices Section. Regional Geologists are located in the following centres: Kenora, Thunder Bay, Sault Ste. Marie, Timmins, London, Richmond Hill, Huntsville, and Kemptville.

In addition, a Resident Geologist, reporting directly to the appropriate Regional Geologist, is stationed in Red Lake, Sioux Lookout, Sudbury, and Kirkland Lake.

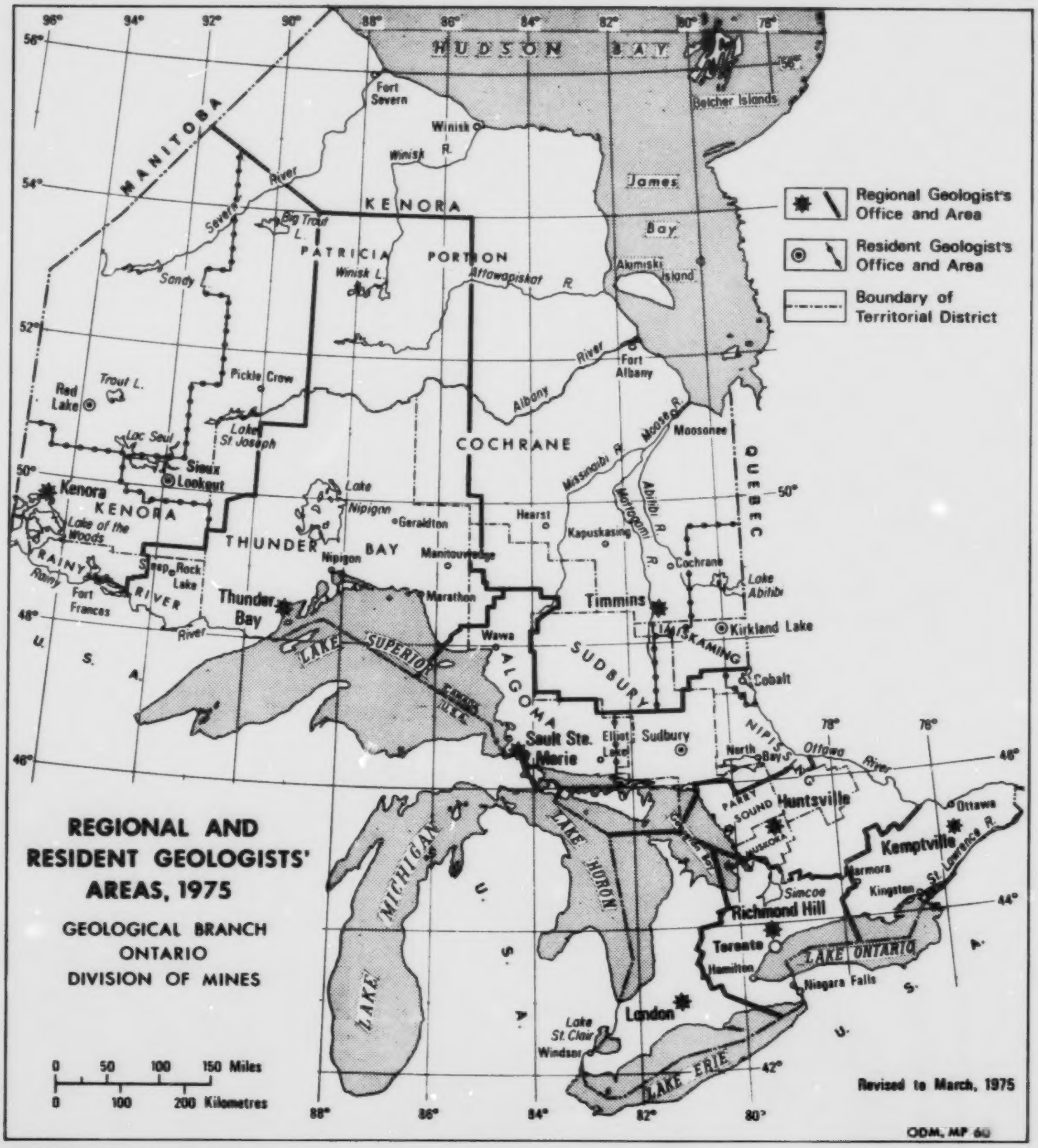
The Regional and Resident Geologists are primarily concerned with collecting and disseminating information on the geology and mineral resources in their areas. They are part of a regional management team charged with the responsibility of resource management. They maintain a library of published and unpublished reports, and other documents of Geological and mining interest, including: records of exploration activity submitted for assessment work credits; company prospectuses and reports from the files of the Ontario Securities Commission; reports of property visits by staff geologists; information received directly from companies and individuals; and various news items. Also in each library are microfiche copies of the Ontario Index of Geoscience Data, 1971. Each Regional and Resident Geologist and his records are available for consultation without charge. Duplicate copies of assessment work for the whole Province may also be examined in the Assessment Files Research Office, Room 1606 of the Whitney Block, Parliament Buildings, Toronto.

This report summarized the activities of Regional and Resident Geologists and is an account of mining and exploration activities in Ontario during the year. For the convenience of the reader, it also provides listings of new additions to the records, including reports of government survey and university-sponsored projects.

The Annual Report was prepared from geoscience information collected and filed in 1974 and was written within the organizational framework of Regional and Resident Geologists' areas.

Staff changes and additions have occurred in 1974; these are recorded in the introductory remarks of each section.

Executive Assistant to the Director of the Geological Branch, S.J. Gibson, co-authored the report on the Southwestern Region and supplied additional information for the reports on the Algonquin, Central, and Eastern Regions.


HUDSON BAY
James Bay
MANITOBA
QUEBEC
KENORA PATRICIA PORTION
COCHRANE
KENORA
THUNDER BAY
RAINY RIVER
ALGOMA
SUDBURY
TIMISKAMING
NIPISSING
PARRY SOUND
MUSKOKA
LAKE SUPERIOR
LAKE MICHIGAN
LAKE HURON
LAKE ONTARIO
LAKE ERIE
U. S. A.
Fort Severn
Winisk
Belcher Islands
Akimiski Island
Big Trout L.
Winisk L.
Attawapiskat R.
Sandy
Severn River
Red Lake
Trout L.
Pickle Crow
Lac Seul
Lake St Joseph
Sioux Lookout
Kenora
Lake of the Woods
Fort Albany
Albany River
Moosonee
Moose R.
Missinaibi R.
Mattagami R.
Abitibi R.
Lake Nipigon
Geraldton
Nipigon
Manitouwadge
Marathon
Hearst
Kapuskasing
Cochrane
Lake Abitibi
Timmins
Kirkland Lake
Cobalt
Steep Rock Lake
Fort Frances
Thunder Bay
Wawa
Sault Ste. Marie
Elliot Lake
Sudbury
North Bay
Ottawa River
Huntsville
Ottawa
Kemptville
Marmora
Kingston
St. Lawrence R.
Simcoe
Richmond Hill
Toronto
Hamilton
Niagara Falls
London
Lake St. Clair
Windsor
Regional Geologist's Office and Area
Resident Geologist's Office and Area
Boundary of Territorial District
0 50 100 150 Miles
0 100 200 Kilometres
Revised to March, 1975
ODM, MP 60

REGIONAL AND RESIDENT GEOLOGISTS' AREAS, 1975

GEOLOGICAL BRANCH
ONTARIO
DIVISION OF MINES

REGIONAL GEOLOGISTS' OFFICES		ADDRESS	TELEPHONE
Northwestern Region	- R.C. Beard	808 Robertson St., Kenora, P9N 3X7	(807) 468-3111
North Central Region	- K.G. Fenwick	435 James St. S., Box 5000, Thunder Bay, P7B 3C1	(807) 345-1438
Northern Region	- Dr. W.O. Karvinen	60 Wilson Ave., Timmins, P4N 3W2	(705) 267-1401
Northeastern Region	- Dr. P.E. Giblin	390 Bay St., Box 1900, Sault Ste. Marie, P6A 5N9	(705) 949-1780
Algonquin Region	- J.R. Trusler	Box 9000, Huntsville, POA 1KO	(705) 789-9611
Eastern Region	- Dr. M.A. Klugman	South Boundary Road, Kemptville, KOG 1JO	(613) 258-3413
Central Region	- Dr. U.J. Vagners	10670 Yonge St., Richmond Hill, L4C 3C9	(416) 884-9203
Southwestern Region	- R.G. Bryant	1106 Dearness Drive, London, N6E 1N9	(519) 681-5350

RESIDENT GEOLOGISTS' OFFICES			
Red Lake	- A.P. Pryslak	Ontario Govt. Bldg., Box 860, Red Lake, POV 2MO	(807) 727-2252
Sioux Lookout	- P.A. Palonen	Box 1089, Sioux Lookout, POV 2TO	(807) 737-1291
Kirkland Lake	- H.L. Lovell	4 Government Rd. E., Kirkland Lake, P2N 1A2	(705) 567-5242
Sudbury	- D.G. Innes	1112 The Kingsway, Sudbury, P3B 2E5	(705) 566-2580

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1974 REPORT
of the
NORTHWESTERN REGIONAL GEOLOGIST
and
KENORA RESIDENT GEOLOGIST
by
R.C. Beard

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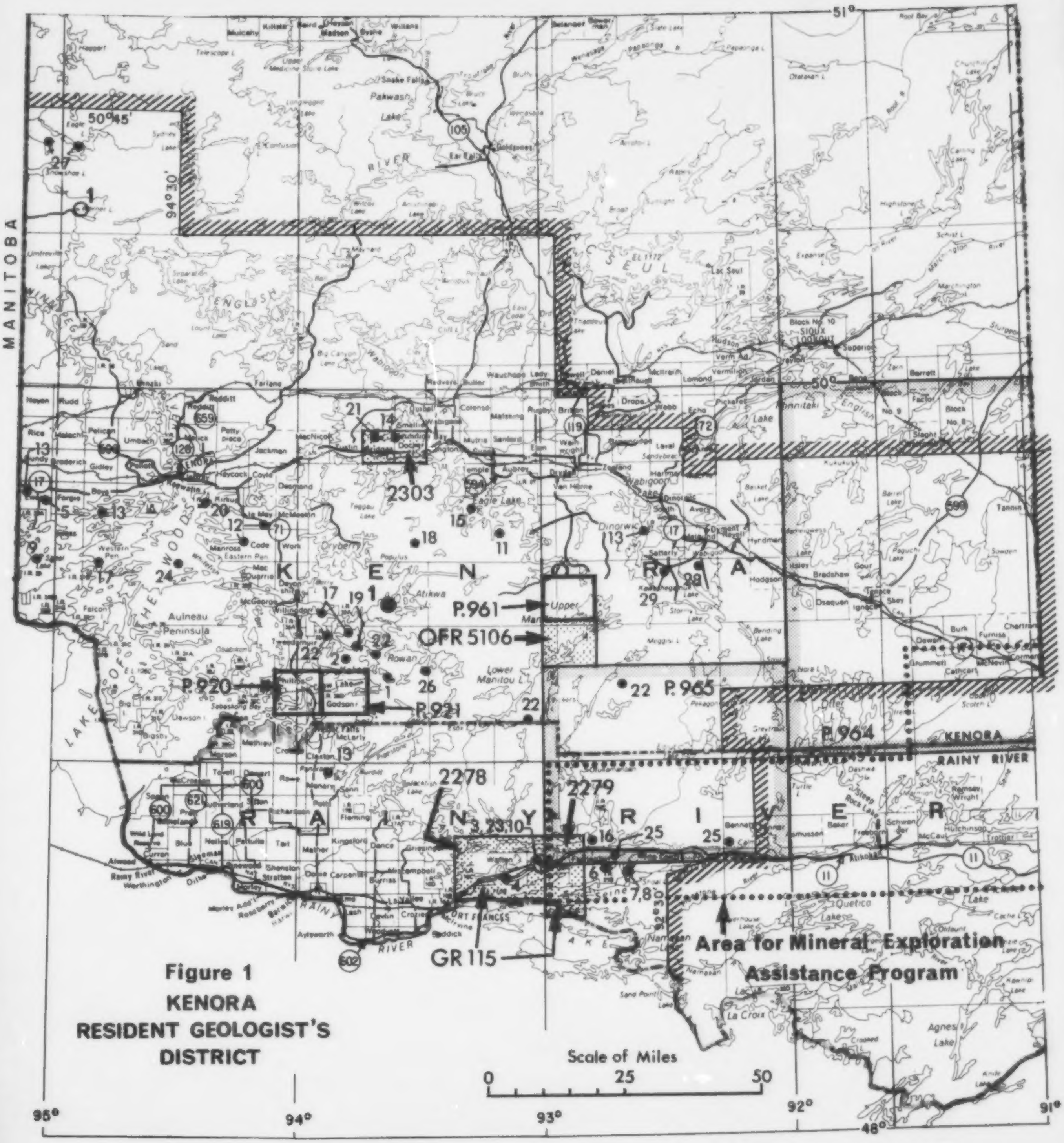
51°
50°45'
94°30'
MANITOBA
ENGLISH RIVER
LAC SEUL
SIOUX LOOKOUT
KENORA
LAKE OF THE WOODS
Aulneau Peninsula
K E N O R A
R A I N Y R I V E R
2303
P.961
OFR 5106
P.920
P.921
P.965
P.964
2278
2279
GR 115
FORT FRANCES
Area for Mineral Exploration Assistance Program
Scale of Miles
0
25
50
95°
94°
93°
92°
91°
48°
50°
KENORA
RAINY RIVER

Figure 1
KENORA
RESIDENT GEOLOGIST'S
DISTRICT

EXPLANATION

● Producing Mine
1. Maybrun Mines Ltd.
(leased to Sheridan Geophysics Ltd.) Cu, Au.

○ Mine Terminating Operation
1. Consolidated Canadian Faraday Ltd.
(Gordon Lake mine) Ni, Cu.

• Exploration Activity in 1974
(Keyed to Table 2)

— New Maps and/or Reports (ODM) with number
P - Preliminary Map
GR - Geological Report
OFR - Open File Report
2303 - Coloured Geological Map

▨ Boundary of Resident Geologist's District

1974 REPORT

# of the

NORTHWESTERN REGIONAL GEOLOGIST

and

KENORA RESIDENT GEOLOGIST

by

R.C. Beard[1]

INTRODUCTION: The Ministry's office for the Northwestern Administrative Region is located in Kenora where the Regional Geologist, in addition to his other responsibilities, also functions as a Resident Geologist for the Kenora Mining Division. Other Resident Geologist offices in the Northwestern Region are located at Red Lake and Sioux Lookout. The Regional and Resident Geologists, together with their Geological Assistants, make up a professional team whose objective is "to provide geoscience information to encourage exploration activity and as a basis for planning the optimum utilization of mineral resources of Ontario".

In the Kenora office, G. Garratt served as Geological Assistant from January through October, 1974. J. Davies, Ontario Division of Mines geologist based in Kenora but on loan to the Canadian International Development Agency for the past two years, returned from Ethiopia to Kenora in September 1974 to resume his duties with the Precambrian Geology Section of the Geological Branch.

REGIONAL GEOLOGIST'S ACTIVITIES: The Kenora district geological staff were relatively new to the area in 1974, both having joined the Ministry in late 1973. In order to provide the most accurate and up-to-date geoscience information and advice possible, both to industry to encourage exploration activity and to the Ministry for mineral management purposes, most of the producing mines and mining properties under development in the Northwestern Region were visited during the year. The Maybrun Mines Limited property, under lease to Sheridan Geophysics Limited, (the only producer in the Kenora Mining Division) was visited on several occasions.

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[1] Regional Geologist, Ontario Ministry of Natural Resources, Provincial Building, 808 Robertson Street, Kenora, P9N 3X7.

Other producing properties in the Region visited were those of Madsen Red Lake Gold Mines Limited, Campbell Red Lake Gold Mines Limited, Mattabi Mines Limited, Sturgeon Lake Mines Limited, the Griffith mine of the Steel Company of Canada, and the South Bay mine of Selco Mining Corporation Limited. Other property visits included: the Gordon Lake plant of Consolidated Canadian Faraday Limited where ore from the Dumbarton mine in Manitoba is being milled; two properties undergoing active development (Union Miniere Explorations and Mining Corporation Limited's Thierry deposit near Pickle Lake and the Wilmar property of Cochenour Willans Gold Mines Limited at Red Lake); three properties undergoing active surface and/or underground exploration (the Cameron Island mine of Consolidated Professor Mines Limited at Shoal Lake, the Caswell-Williams deposit (Dubenski Option) under option to Noranda Exploration Company Limited at Flint Lake, and the Berens River mine of Zahavy Mines Limited near Favourable Lake); two active rock quarries at Hawk Lake and White, Ontario; and fourteen additional mining properties and mineral occurrences. Short visits were also made to each of the Geological Branch, Precambrian Geology Section field parties mapping in the Boyer Lake, Pipestone Lake, and Kenora-Sydney Lake areas (see ODM publication MP59, Summary of Field Work, 1974).

With a number of major companies actively involved in base metal exploration in the district as well as a strong interest being shown by both individuals and companies in many old gold occurrences, the staff was frequently called on to provide geoscience consultation in 1974. At the same time, a significant part of the staff's attention was devoted to providing geoscience information for government land management and mineral management projects.

Geological Branch involvement with the Division of Lands in the Northwestern Region was largely in the field of land use planning. With land use planning becoming more and more important across the Province, it is essential that areas of high mineral potential be brought to the attention of the planners, so that they are not earmarked specifically for other uses. Two major plans, the Strategic Land Use Plan for Northwestern Ontario and the Lake of the Woods Land Use Plan, prepared by the Ministry of Natural Resources, were introduced to the public in the Region in 1974. The background information dealing with mineral resources was reviewed at various stages in the planning process, by the Kenora geological staff. Information on the mineral potential of several other specific areas was also provided, for other less formal plans. These areas included the Rainy Lake area, the Manitou Road area between Dryden and Fort Frances, and a section of the English River system. Information and comments were also provided on several proposed wilderness park sites and proposed extension of existing provincial parks. A geological assessment and sampling program was carried out by the staff of the Red Lake Resident Geologist's office on a mining property which had recently reverted to the Crown.

In cooperation with Park Planning Branch, the Kenora geological staff provided support and technical guidance, including editing of final reports, for two geoscientists carrying out earthscience inventory surveys. Four of the Region's provincial parks and park reserves (Sandbar Lake Provincial Park, Blue Lake Provincial Park, Lake of the Woods Provincial Park, and Pistol Lake Park Reserve) were surveyed in 1974 under this program.

Recommendations were provided for the regional program, of the Division of Fish and Wildlife, for future lake surveys as related to possible mining developments. Problems related to disposal of mines tailings in lakes and to seismic research using lakes as shot points were dealt with, in conjunction with the Division of Fish and Wildlife, other Divisions of the Ministry of Natural Resources, and the Ministry of the Environment.

Geological information and services were also provided to other governmental ministries and agencies including the Ontario Ministry of the Environment and the federal Department of Indian Affairs and Northern Development.

Lectures and demonstrations on mining and geology were given by the Kenora staff to a number of student groups. These included one high school earthscience class, six grade school "outer" camps, one high school "career day", one Junior Ranger Camp, and one large group attending a conservation course in the Dryden area.

G. Garratt, geological assistant, carried out an extensive compilation of gold occurrences in the Kenora-Fort Frances area. Over 320 individual occurrences have been briefly described and located on a 1 inch to 4 mile scale (1:253,440) map, for publication by the Geological Branch in 1975. Two Kenora Data Series compilation maps at a scale of 1 inch to ¼ mile (1:15,840), for the Rowan Lake and Pipestone Lake areas, were also compiled for future publication.

Geological and mineral deposit data was compiled for use by the Mineral Deposits Section of the Geological Branch in updating various mineral deposit and mineral potential maps.

GEOLOGICAL BRANCH ACTIVITIES: Staff of the Precambrian Geology Section carried out three mapping projects in the district during 1974. G.R. Edwards carried out detailed mapping in the Pipestone Lake area east of Nestor Falls. This map-area ties onto previous mapping in the Crow Lake area (ODM Preliminary Maps P.920 and P.921), Rowan Lake area (ODM Preliminary Map P.831, see Kaye 1973), and Cedartree Lake area (ODM Preliminary Map P.731, see Davies and Moran 1972). It effectively completes the mapping of the thick Kakagi Lake volcanic pile, although additional work is planned for the area immediately south of the Pipestone Lake area in 1975. In the Boyer Lake area east of Upper Manitou Lake, C.E. Blackburn carried out a detailed geological mapping program. This mapping ties to the Upper Manitou Lake area (ODM Preliminary Map P.961) and the Lower Manitou-Uphill Lakes area (ODM Preliminary Map P.816, see Blackburn 1973). Operation Kenora-Sydney Lake, a helicopter reconnaissance program, was carried out under the supervision of F.W. Breaks, W.D. Bond, and G.H. McWilliams. This reconnaissance survey covered parts of the English River Subprovince from the Manitoba border eastward to approximately the Red Lake Highway 105.

A brief summary of these and other areas mapped by the Geological Branch in 1974 is given in ODM publication MP59.

RESEARCH BY OTHER ORGANIZATIONS: The Centre for Precambrian Studies at The University of Manitoba continued an extensive geoscience research program in northwestern Ontario in 1974. This program, initiated in 1972 under a five-year grant from the National Research Council of Canada, has as its goal a better understanding of the nature and development of the Archean portion of the Canadian Shield.

Four field parties of the Centre for Precambrian Studies were active in the Kenora district in the summer of 1974. These included two geological field parties, one seismic field party, and one gravity survey crew, carrying out the following projects:

1) On the Western Peninsula, northern Lake of the Woods, one geological party investigated the nature of the volcanic products in the upper cyclic series and middle felsic series of the volcanic pile, for comparison with standard middle and lower series volcanic products.

2) The second geological party investigated the layered gneisses of the English River Subprovince. While detailed work was largely confined to the Pakwash Lake and Lac Seul areas, the project also included reconnaissance work in the Sydney Lake area, the area south of Uchi Lake, and as far east as Lake St. Joseph.

3) In the Aulneau area, seismic reflection studies were continued, directed towards identifying the crustal structure under the Aulneau batholith and relationships with the adjacent volcanic rocks.

4) In the northern Lake of the Woods area, gravity traverses were run from the Aulneau batholith, across the Lake of the Woods volcanic sequence, into the English River Subprovince.

Graduate students from several Canadian and United States universities also carried out geological studies in the area in 1974. A significant number of these projects this year were directed towards a better understanding of small granitic intrusive bodies. Individual projects, listed below, included six by representatives from McMaster University and one from the University of North Dakota:

1) D. Birk (McMaster University) carried out mapping, sampling, and radiometric dating on a number of small intrusions including the Burditt Lake, Ryckman Lake, Esox Lake, Froghead Bay, Flora Lake, Regina Bay and Uphill Lake stocks.

2) F. Longstaff (McMaster University) examined stocks in the Lake Despair, Jackfish Lake, and Footprint Lake areas south and east of Burditt Lake and the Vermilion Lake area. This work included detailed mapping, petrology, and stable element geochemistry.

3) J. Kwong (McMaster University) researched background values in gold in the Kakagi Lake areas.

4) C. Westerman (McMaster University) carried out geological investigations in the English River Subprovince, in the areas around Cliff Lake and Cedar Lake north of Vermilion Bay.

5) P. Wallace (McMaster University) continued studies on the strucutral geology of the Upper Manitou Lake "greenstone" belt, including detailed geological mapping.

6) P. Teal (McMaster University) continued a project dealing with the stratigraphy and sedimentology of the Manitou Lakes "greenstone" belt.

7) R. Pilatzko (University of North Dakota) carried out geological investigations in the granitic terrain of the Longbow Lake area, east of Kenora.

MINING ACTIVITY: The only mine in operation in the Kenora Mining Division in 1974 was the property of Maybrun Mines Limited, an open pit copper-gold mine leased to Sheridan Geophysics Limited and located in the Atikwa Lake area, 50 miles (80 km) southeast of Kenora. Full scale production commenced from this property in mid-1973, continuing throughout 1974 at a rate of approximately 300 tons per day. During the past year, the company has announced plans to develop two additional small gold-bearing zones to the north of the main pit (The Northern Miner, April 25, 1974, p.15). Mineralization at the Maybrun Mines Limited property occurs as irregular seams and concentrations of chalcopyrite, pyrrhotite, and pyrite within a basaltic host rock. The sulphides have been described (Davies 1973, p.36) as localized along fractures and pillow margins although this relationship is not always readily apparent. The sulphide concentrations typically occur as discrete masses with rather sharp boundaries between sulphide masses and barren host rock. There is no all weather road to the property and concentrates are barged out to Highway 71, for trucking to the Kenora railhead during the summer months.

The Gordon Lake mine of Consolidated Canadian Faraday Limited, located at Werner Lake, 50 miles (80 km) north of Kenora, ceased production of nickel-copper ore in late 1972. The mill, however, has continued in operation since that time, treating ore trucked from the Dumbarton mine, 25 miles (40 km) to the west, in Manitoba. Mill production has continued through 1974 at an average rate of approximately 800 tons per day. Ore reserves at the Dumbarton mine are limited (The Northern Miner, May 30, 1974, p.8) and additional ore zones are being sought, both at the mine and in the general area, in order to extend the life of the operation.

EXPLORATION ACTIVITY: The general level of exploration in the Kenora Mining Division in 1974 again showed a significant increase, continuing the upward trend of recent years. Claim staking was up 38 percent with 2,653 claims recorded in 1974, contrasted with 1,920 recorded in 1973. The increase in the amount of assessment work filed was even more marked, up 52 percent, as detailed in Table 1.

Table 1 Summary of Assessment Work Received
Kenora Mining Division

Type of Work	1971	1972	1973	1974
Manual Labour	638	833	506	1,139
Power Equipment	853	1,459	509	729
Diamond Drilling	51,615	19,781	20,910	32,506
Geophysical Surveys	22,040	9,964	13,019	18,049
Geological Surveys	360	800	1,798	3,309
TOTALS	75,506	32,837	36,742	55,732

This increase in activity in the Kenora Mining Division is in marked contrast to the continued decline in activity in the more northern Mining Divisions of the Northwestern Region. Red Lake Mining Division showed a decline in staking and assessment work of 17 and 31 percent respectively, while Patricia Mining Division declined 33 and 50 percent respectively. These statistics seem to reflect a shift in emphasis from the northern, more remote areas, to the more accessible areas to the south. Much of the increase in the Kenora Mining Division is a direct result of the activities of a number of major companies who were engaged in extensive basic exploration programs for base metals. Also, a significant factor has been the continued interest in gold exploration brought on by the spectacular rise in the price of gold. The Kenora-Fort Frances area has long been known for its large number of small gold occurrences, and many companies and individuals have been attracted to the area in the past two years.

A number of these gold deposits in the district received attention in 1974. While no underground development programs were reported during the year, several properties were subjected to extensive surface exploration, usually in the form of diamond drilling.

At Shoal Lake, west of Kenora, Consolidated Professor Mines Limited continued its re-evaluation of the old Cameron Island or Duport mine. The underground workings were pumped out and sampled in late 1973. During the winter of 1973-74 an extensive surface diamond drilling program was carried out from the ice to delineate the ore structures. The company has indicated that they intend to go ahead with further underground development on this property (The Northern Miner, July 11, 1974, p.3) but no dates have been reported. An airborne geophysical survey was also flown for the company over much of the Shoal Lake area in 1974.

In the Dogpaw-Rowan-Kakagi Lakes area east of Sioux Narrows, Noranda Exploration Company Limited has reported surface drilling on several previously known gold deposits including the Caswell-Williams occurrence (Dubenski Option) at Flint Lake and the Zahavy Mines Limited property at Beggs Lake. Other companies and individuals are active in this area as well and, with the large number of gold occurrences known in the general Kakagi Lake area, a centrally located mill might be feasible if sufficient tonnage could be outlined.

In the southern part of Lake of the Woods, Pango Gold Mines Limited completed an 11-hole diamond drilling program on the old Gull Island gold occurrence while in the Mine Centre area east of Fort Frances, Fanex Resources Limited completed a 9-hole drilling program on the former Golden Star property.

Base metal exploration continued to take a front seat on the Kenora district exploration scene in 1974. A large number of major companies were actively engaged in various stages of integrated programs, from airborne geophysical surveys to diamond drilling. These companies included Hudson Bay Exploration and Development Company Limited, Sherritt Gordon Mines Limited, The International Nickel Company of Canada Limited, Hudson's Bay Oil and Gas Company Limited, Conwest Exploration Company Limited, Selco Mining Corporation Limited, Noranda Mines Limited, Newmont Mining Corporation of Canada Limited, Dome Mines Limited, and Kerr Addison Mines Limited.

The area which has probably been most intensively explored in the last several years is the Shoal Lake-Lake of the Woods metavolcanic-metasedimentary belt. All or part of this belt appears to have been flown by at least five companies in the past two years, most of whom continued work through 1974. Results of diamond drilling thus far have indicated that while massive sulphides are common, base metal values are generally lacking.

The Kakagi-Rowan Lakes area also received its share of intensive exploration coverage with at least three major companies actively searching for base metals there in 1974.

Other areas reported to have received airborne coverage and/or extensive testing by ground geophysics and drilling in 1974 are the Boyer Lake-Kawashegamuk Lake area southeast of Dryden, the Off Lake-Burditt Lake area south of Nestor Falls, the Sioux Narrows-Whitefish Bay area, the Grummett-Cathcart Townships area southeast of Ignace, the Vista Lake area south of Lower Manitou Lake, and the Werner Lake area.

The general approach to base metal exploration in the Kenora district in recent years seems to have been one of extensive, long range programs covering large areas over a number of years rather than quick coverage of smaller areas, as is common in the more isolated parts of the Province. This approach avoids staking rushes and other property acquisition problems, allows a more detailed, in-depth evaluation of anomalies and areas, and places greater emphasis on geological interpretation.

The Fort Frances-Mine Centre area was also examined by a number of companies and individuals, for both base metals and gold.

Of special significance is the recent interest expressed in the English River Subprovince north of Kenora and Dryden. These areas of gneissic terrain have traditionally been considered as rather unfavourable for base metals. However, with the extensive coverage that most of the metavolcanic-metasedimentary belts of the shield have now received, many companies are searching for virgin ground to explore. A number of remnant metavolcanic zones have been known within the English River Subprovince for some time and these and other metavolcanic areas are now being explored, although only on a limited scale to date. The Separation Lake metavolcanic-metasedimentary belt north of Kenora was explored in some detail this year. There were also indications of activity in an area near Cedar Lake, 25 miles (40 km) northwest of Dryden.

Strong interest in uranium exploration did not materialize to the extent expected in 1974. The only major program reported was in the Tustin-Bridges Townships area between Kenora and Dryden. Other occurrences and areas were also investigated, largely concentrated along the contact between the English River and Wabigoon Subprovinces, but details of these investigations are lacking.

PROPERTY EXAMINATIONS:

K. McTavish: This property is located in eastern Watten Township, about 18 miles (29 km) east of Fort Frances. The original showing which consisted of minor amounts of chalcopyrite and sphalerite in a narrow band of mafic tuffs and iron formation within mafic volcanic rocks, was visited and reported on by H.L. King, Kenora Resident Geologist, in 1972 (King 1973, p.14-15).

Following this visit, the property was optioned to Noranda Exploration Company Limited and a new mineralized zone was discovered approximately 2,000 feet (610 m) northeast of the main showing. Testpits in this area exposed disseminations and stringers of pyrite, pyrrhotite, and minor chalcopyrite in mafic metavolcanics. No iron formation was noted in the area adjacent to the more recent showing.

A geophysical survey revealed a conductor over the area of testpits and one diamond drill hole was put down by Noranda Exploration Company Limited which intersected only minor values in copper, nickel, and zinc. However, it is questionable if this hole actually intersected the source of the anomaly, at depth.

F. Pritchard: Molybdenite mineralization was recently discovered on the northshore of Gundy Lake, 24 miles (39 km) west of Kenora. The showing occurs in a large intrusion of granodiorite.

Coarse molybdenite is found in two quartz veins, 20 to 25 feet (6 to 8 m) apart. The veins strike N70E and dip approximately 50S. The south vein which is exposed at water's edge for a distance of about

20 feet (6 m), is 4 to 6 feet (1 to 2 m) wide. The second vein, 6 to 8 feet (2 to 2.5 m) in from the lakeshore, is exposed for a shorter length, and is 10 to 12 inches (25 to 30 cm) in width. Grains of coarse molybdenite are scattered throughout both quartz veins, where exposed, and some molybdenite can be seen in almost every specimen of vein material examined. No disseminated molybdenite was noted in the adjacent granitic host rock.

Two grab samples collected by the author and analysed by the Mineral Research Branch, Ontario Division of Mines contained 2.68 and 0.50 percent molybdenum.

Langton Township Uranium Occurrence: Radioactive showings were first reported by M. Tew on lots 1 and 2, concession V, Langton Township in 1967. The radioactivity is found in an area underlain by quartz monzonite which contains scattered inclusions of gneissic rock. A number of pits and trenches have been put down on scattered areas of high radioactivity along the length of two claims.

The radioactive mineralization, consisting of pitchblende and yellow uranium oxide staining along fractures, is not too conspicuous, even in areas of high radioactivity.

Scintillometer readings by the author over the various pits averaged 800 counts per minute over a background of 100 to 200 counts per minute although one reading of 2,000 counts per minute was recorded across a zone 3 to 4 feet (0.9 to 1.2 m) wide. A traverse across a second showing gave anomalous readings across a width of 15 to 20 feet (5 to 6 m). Little lateral continuity could be found over any of the pitted areas. The strike of one of the radioactive zones appeared to be N40E.

J. Harrison (Beaverpond Occurrence): Following the discovery of copper-nickel mineralization in mafic rocks along the south shore of Mile Lake south of Dryden, trenching, geophysical surveys, and over 25 diamond drill holes were completed on a large group of claims by Nichro Mines Limited in 1969 and 1974. During the same period, similar mineralization was also discovered in an area approximately 3,000 feet (900 m) east of Mile Lake. In this area, two diamond drill holes were also completed by Nichro Mines Limited on claim K-203509 at that time. One of these drill holes was put down to test copper-nickel mineralization exposed in a test pit at the edge of a beaver pond. Available sections of the core from this hole were assayed by the Mineral Research Branch, Ontario Division of Mines. One section, from 144 to 160 feet (44 to 49 m), averaged 0.21 percent copper and 0.09 percent nickel.

In 1974, one additional diamond drill hole was completed by Nichro Mines Limited adjacent to the showing but assay results were not available at the time of writing. A very-low-frequency electromagnetic survey was also completed over part of the claim which outlined two apparently untested conductors.

Mineralization consists of finely disseminated chalcopyrite and pyrrhotite in a porphyritic quartz gabbro. While the sulphides are disseminated throughout much of the rock exposed in the pit, a more strongly mineralized shear zone can be observed striking N80W and dipping 78N.

One grab sample collected by the author from the test pit assayed 0.33 percent copper and 0.37 percent nickel (analyses by Mineral Research Branch, Ontario Division of Mines).

ACCESS ROADS: The Manitou Road, under construction between the Fort Frances area and Dryden, has been extended northward to mile 46, near Eagle Rock Lake.

West of Little Turtle Lake near Mine Centre, an access road has been extended approximately 5½ miles (8.8 km) north from Highway 11.

South of Eagle Lake, a road is being extended westward from Bear Narrows towards Mulcahy Lake.

ODM MAPS AND REPORTS ISSUED BY THE GEOLOGICAL BRANCH IN 1974: Publications pertaining to the Kenora Resident Geologist's district and issued during 1974 are listed in the following section. Figure 1 shows the location of areas in the district for which new maps and reports have been issued.

P.920	Crow Lake Area (Western Part), District of Kenora (52 F/4W). Geology by L. Kaye and assistants, 1973. Scale 1 inch to ¼ mile or 1:15,840.
P.921	Crow Lake Area (Eastern Part), District of Kenora (52 E/1E, 52 F/4W). Geology by L. Kaye and assistants, 1973. Scale 1 inch to ¼ mile or 1:15,840.
P.961	Upper Manitou Lake Area, District of Kenora (52 F/7W). Geology by C.E. Blackburn and Assistants, 1973. Scale 1 inch to ¼ mile or 1:15,840.

P.964	Operation Ignace-Armstrong, Ignace-Graham Sheet, Districts of Thunder Bay, Rainy River and Kenora (52 G/2,3,4,5,6,7,10,11,12). Geology by R.P. Sage, F.W. Breaks, G.M. Stott, G.M. McWilliams and S. Atkinson, and other assistants, 1973. Scale 1 inch to 2 miles or 1:126,720.
P.965	Operation Ignace-Armstrong, Mine Centre-Entwine Lake Sheet; Districts of Kenora and Rainy River (52 C/15, 52 C/16, 52 F/1, 52 F/2). Geology by R.P. Sage, F.W. Breaks, G.M. McWilliams, G.M. Stott, and A. Ali, and other assistants, 1973. Scale 1 inch to 2 miles or 1:126,720.
Map 2229	Index to Aeromagnetic Maps of Ontario, Revised 1974. Scale 1 inch to 30 miles or 1:1,900,800.
Map 2278	Rice Bay, Rainy Lake, Rainy River District (52 C/11, 52 C/14). Geology by F.R. Harris and assistants, 1968, 1969. Scale 1 inch to ½ mile or 1:31,680.
Map 2279	Seine Bay, Rainy Lake, Rainy River District (52 C/10, 52 C/15). Geology by F.R. Harris and assistants, 1969. Scale 1 inch to ½ mile or 1:31,680.
Map 2303	Bridges and Docker Townships, Kenora District (52 F/13, 52 F/14). Geology by A.P. Pryslak and assistants, 1968. Scale 1 inch to ½ mile or 1:31,680.
Map 2310	Ontario Mineral Map, compilation by the Geological Branch, Ontario Division of Mines, Revised 1974. Scale 1 inch to 25 miles or 1:1,584,000.
GR115	Geology of the Rainy Lake Area, District of Rainy River (52 C/10, 52 C/11, 52 C/14, 52 C/15), by F.R. Harris, 94p., 6 tables, 7 figures, 8 photos. Accompanied by Map 2278 and Map 2279, scale 1 inch to ½ mile or 1:31,680.
OFR5103	Selective Retrieval from the Canadian Index to Geoscience Data on (1) Assessment Work (1972, 1973) Filed with the Ontario Division of Mines and (2) Reports Received under Ontario's Mineral Exploration Assistance Program (MEAP) by H.A. Groen.
OFR5104	Ontario Occurrences of Float, Placer Gold, Indicator Minerals for kimberlite, etc. by S.A. Ferguson, 225p., 6 figures.
OFR5106	Geology of the Lower Manitou-Uphill Lakes Area, District of Kenora (52 F/7). Geology by C.E. Blackburn, 1973; 169p., 9 figures, 6 tables, 19 photos (xerox copies), and Map P.816, scale 1 inch to ¼ mile or 1:15,840.

OFR5114	Mineral Exploration Assistance Program (MEAP), Fiscal Years 1971-72, 1972-73, and 1973-74 by S.A. Ferguson, E. Bayer and S.C. Sun, 1974, 70p.
MP57	Annual Report of Resident Geologist's Section, Geological Branch, 1973. Edited by C.R. Kustra, 192p., 22 figures, 17 tables.
MP58	A Regional Approach to the Wabigoon-Quetico Belts and its Bearing on Exploration in Northwestern Ontario, by W.O. Mackasey, C.E. Blackburn, and N.F. Trowell; 34p., 8 tables.
MP59	Summary of Field Work, 1974, by the Geological Branch. Edited by V.G. Milne, D.F. Hewitt, and K.D. Card, 206p. plus various figures and key maps.
1973 Review	Ontario Mineral Review 1973, 136p., with various tables, figures, and photographs.
Bulletin 173	Silicosis in Hardrock Miners in Ontario (A Further Study), by J.F. Paterson, 48p., 10 tables, 6 figures.

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1973: Geology of the Atikwa Lake Area, District of Kenora; Ontario Div. Mines, GR111, 57p. Accompanied by Map 2273, scale 1 inch to ½ mile or 1:31,680.

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Table 2 Exploration Activity in 1974

The following is a list of individuals and companies known to be engaged in exploration within the Kenora Mining Division in 1974, and the type of work undertaken in each case. The numbers correspond to the numbered areas on Figure 1.

	Individual or Company	Type of Work
1.	Aggressive Mining Ltd.	Ground magnetic survey, geological mapping, and assaying in the Rowan Lake area.
2.	Amax Exploration, Inc.	Ground electromagnetic survey and diamond drilling in the Dogpaw Lake area.
3.	Belacoma Mines Ltd.	Diamond drilling in Halkirk Township.
4.	Borschneck, Vince	Ground electromagnetic and magnetic surveys in Watten Township.
5.	Boucha, J.W.	Diamond drilling in Ewart Township.
6.	Carlson, K.M.	Stripping and trenching in the Bliss Lake area.
7.	Ciglen Investments Ltd.	Ground electromagnetic and magnetic surveys in the Grassy Lake area.
8.	Cone, Russell	Trenching, drilling, and blasting in the Grassy Lake area.
9.	Consolidated Professor Mines Ltd.	Airborne magnetic and electromagnetic surveys in the Shoal Lake, Echo Bay & Boys Township, Ewart Township and Indian Bay, and Snowshoe Bay areas.
10.	Cousineau, Louis E.	Stripping and trenching in Halkirk Township.
11.	Doak, Clifford M.	Trenching in the Buchan Bay area.
12.	Dome Exploration (Canada) Ltd.	Diamond drilling in Code and Manross Townships and ground electromagnetic surveys in Lemay and Manross Townships.
13.	Hudson Bay Exploration and Development Co. Ltd.	Ground electromagnetic surveys in the Butler Lake and Turtlepond Lake areas and diamond drilling in the Beadle Lake, Echo Bay and Boys Township, and Ewart Township and Indian Bay areas.
14.	Imperial Oil Ltd.	Geological mapping in Bridges and Docker Townships.
15.	Kamlo Gold Mines Ltd.	Ground electromagnetic, magnetic, and induced polarization surveys and geological mapping in the Buchan Bay area.
16.	Kelly, Thomas J.	Stripping in the Porter Inlet area.
17.	Kuryliw, Chester J.	Ground magnetic surveys and geological mapping in the Dogpaw Lake, Lobstick Bay, Wiley Bay, and Rowan Lake areas.
18.	Lynx-Canada Exploration Ltd.	Geological mapping in the Fisher Lake area.
19.	Martin, Jack D.	Trenching in the Dogpaw Lake area.
20.	Minaki Gold Mines Ltd.	Diamond drilling in the Bigstone Bay area.
21.	Mitto, August	Trenching and assaying in Bridges Township.
22.	Noranda Exploration Co. Ltd.	Ground electromagnetic and magnetic surveys in the Dogpaw Lake, Napanee Lake, Rowan Lake, Vista Lake, and Eagle Rock Lake areas and diamond drilling in the Dogpaw Lake, Rowan Lake, and Eagle Rock Lake areas.
23.	North Rock Explorations Ltd.	Diamond drilling in Halkirk Township.
24.	Pango Gold Mines Ltd.	Diamond drilling in the Whitefish Bay & Manross Township and Wiley Bay areas.
25.	Pitkanen, Reino W.	Trenching in Bennett Township, and in the Grassy Lake and Reed Lake areas.
26.	M. Rash & Co. Ltd.	Ground electromagnetic survey in the Rowan Lake area.
27.	Selco Mining Corp. Ltd.	Diamond drilling in the Rickaby Lake and Brooks Lake areas and ground magnetic surveys in the Eagle Lake and Rickaby Lake areas.
28.	Stanley, George	Ground magnetic survey in the Tabor Lake area.
29.	Underwood McLellan and Assoc. Ltd.	Airborne magnetic and electromagnetic survey in the Kawashegamuk Lake, Tabor Lake, and Turtlepond Lake areas and Boyer Lake.

Table 3

Assessment Work Received in 1974

KENORA MINING DIVISION

Abbreviations:

Air - Airborne
5 DDH (620') - 5 Diamond drill holes totalling 620'
EM - Electromagnetic Survey
IP - Induced Polarization Survey
Geol - Geological Survey
Mag - Magnetometer Survey
Rad - Radiometric Survey
Geochem - Geochemical Survey
Res - Resistivity Survey

Location	Ownership	Commodity	Assessment Work & Year	NTS	Toronto File
Beadle Lake	Hudson Bay Exploration & Development Co. Ltd.	**Base metals**	1973 1 DDH (237')	52C/13 NW	
Bennett Tp.	Pitkanen, R.W.		1973 Manual Labour, plugging	52C/16 SW&SE	
Bigstone Bay	Minaki Gold Mines Ltd.	**Base metals**	1973/74 6 DDH (2321')	52E/9 NW	
Bliss Lake	Carlson, K.M.		1973 Stripping, plugging	52C/10 NW	
Boyer Lake	Underwood McLellan & Assoc. Ltd.		1973 Air EM, Mag	52F/8 NW	2.1312
Bridges Tp.	Mitto, A.	Uranium	1973 Trenching & Assay	52F/13 SE	
Buchan Bay	Doak, C.		1973 Trenching	52F/11 NE	
	Kamlo Gold Mines Ltd.		1973 Geol, Mag, IP	52F/11 NE	2.1394
Butler Lake	Hudson Bay Exploration & Development Co. Ltd.		1974 EM	52F/10 NE	2.1446
Code Tp.	Dome Exploration (Canada) Ltd.	**Base metals**	1972/73 EM, Mag 1973 3 DDH (1049') 1974 18 DDH (6364')	52E/9 SE	2.1338
Dogpaw Lake	Amax Exploration, Inc.	**Base metals**	1973 EM 1974 1 DDH (204')	52F/5 SW	2.1469
	Kuryliw, C.J.	Au	1973/74 Mag, Geol		2.1451 2.1452 2.1454
	Martin, J.D.		1973 Manual Labour		
	Noranda Exploration Co. Ltd.	Au	1974 13 DDH (4112') EM, Mag		2.1440
Eagle Lake	Selco Mining Corp. Ltd.		1973 Mag	52L/10 NW	2.1334
Eagle Rock Lake	Noranda Exploration Co. Ltd.	Cu, Ni	1970 EM, Mag 1973/74 7 DDH (2450')	52F/2 NE	2.1328
Echo Bay & Boys Tp.	Consolidated Professor Mines Ltd.		1974 Air EM, Mag	52E/10 NW	2.1498
	Hudson Bay Exploration & Development Co. Ltd.	**Base metals**	1974 10 DDH (3736')		
Ewart Tp. & Indian Bay	Boucha, J.W.	Au Au	1973 1 DDH (101') 1974 4 DDH (351')	52E/11 NE	
	Consolidated Professor Mines Ltd.		1974 Air EM, Mag		2.1498
	Hudson Bay Exploration & Development Co. Ltd.	**Base metals**	1974 5 DDH (1490')		
Fisher Lake	Lynx-Canada Exploration Ltd.		1972 Geol	52F/12 SE	2.1268
Grassy Lake	Ciglen Investments Ltd.		1973 EM, Mag 1974 EM, Mag	52C/10 NE	2.1348 2.1460 2.1461
	Cone, R.C.		1974 Trenching, drilling, & blasting		
	Pitkanen, R.W.		1974 Manual Labour		
Halkirk Tp.	Belacoma Mines Ltd.	**Base metals**	1974 1 DDH (295')	52C/11 NE	
	Cousineau, L.		1973 Stripping & trenching 1974 Stripping & trenching		
	North Rock Explorations Ltd.	**Base metals**	1974 1 DDH (251')		
Kakagi Lake	Selco Exploration Co. Ltd.	**Base metals**	1968 1 DDH (251')	52F/4 NW	
Kawashegamuk Lake	Underwood McLellan & Assoc. Ltd.		1973 Air EM, Mag	52F/8 NW	2.1312
Lemay Tp.	Dome Exploration (Canada) Ltd.		1973 EM	52E/9 NE	2.1338

Location	Ownership	Commodity	Assessment Work & Year	NTS	Toronto File
Lobstick Bay	Kuryliw, C.J.		1973 Geol 1973/74 Mag	52F/5 SW& NW 52F/5 NW	2.1454
Manross Tp.	Dome Exploration (Canada) Ltd.	Base metals	1973 EM 1973 2 DDH (591')	52E/9 SW	2.1338
Porter Inlet	Kelly, T.		1973 Manual Labour	52C/15 SW	
Reed Lake	Pitkanen, R.W.		1973 Trenching	52C/16 SW	
Rickaby Lake	Selco Mining Corp. Ltd.	 Base metals Base metals	1973 Mag 1973 3 DDH (977') 1974 5 DDH (1503')	52L/11 NE	
Rowan Lake	Aggressive Mining Ltd.	Au	1973 Geol, Mag, Assays	52F/5 SE	2.1389
	Kuryliw, C.J.		1973 Geol, Mag		2.1371
	Noranda Exploration Co. Ltd.	Au	1974 9 DDH (2101')		
	M. Rash & Co. Ltd.		1974 EM		2.1495
	Selco Exploration Co. Ltd.	Base metals	1968 1 DDH (306')		
Shoal Lake	Consolidated Professor Mines Ltd.		1974 Air EM, Mag	52E/10 SW	2.1498
Snowshoe Bay	Consolidated Professor Mines Ltd.		1974 Air EM, Mag	52E/11 SE	2.1498
Tabor Lake	Underwood McLellan & Assoc. Ltd.		1973 Air EM, Mag	52F/9 SW	2.1312
Turtlepond Lake	Hudson Bay Exploration & Development Co. Ltd.		1974 EM	52F/10 SE	2.1446
	Underwood McLellan & Assoc. Ltd.		1973 Air EM, Mag		2.1312
	Whitewater Gold Mines Ltd.		1973 EM, Mag		2.1258
Watten Tp.	Borschneck, V.		1973 EM, Mag	52C/11 NE	2.1417
Wiley Bay	Kuryliw, C.J.		1974 Geol, Mag	52E/10 SE	2.1541
	Pango Gold Mines Ltd.	Au	1974 11 DDH (2005')		

Table 4 Other Information Received in 1974

Location	Ownership	Commodity	Date	NTS	Toronto File No.
Boyer Lake	Osisko Lake Mines Ltd.		1974 1 prospectus	52F/7 NE	
Brooks Lake	Selco Exploration Co. Ltd.	Basemetals	1968 1 DDH (401')	52F/4 NE	
Rickaby Lake	Gambit Explorations Ltd.	Cu, Ni, Au	1974 1 prospectus 1 geol 1972/73 3 DDH (305')	52L/11 NE	
Clearwater Bay	Kenricia Gold Mines		1936-40 Progress report	52E/10 NE	

Table 5 Airborne Geophysical Data Received in 1974

Company	Location	Contractor	Type	Equipment	Year	NTS	Toronto File No.
Consolidated Professor Mines Ltd.	Shoal Lake, Echo Bay & Boys Tp. and Ewart Tp. & Indian Bay (Glass Tp.) and Bay	Sander Geophysics Ltd.	EM Mag	Sander Helicopter EM-3A (In Phase-Out of Phase) Sander NPM-4 Nuclear Precession Magnetometer	1974	52E/10 SW NW 52E/11 SE NE	2.1498
Underwood McLellan & Assoc. Ltd.	Boyer Lake, Tabor Lake, Turtlepond Lake and Kawashegamuk Lake Areas and Satterly Tp.	Questor International Surveys Ltd.	EM Mag	Barringer Mark V1 Input System Barringer AM-104 Proton Precession Magnetometer	1973	52F/7 NE F/8 NW F/9 SW F/10 SE	2.1312

1974 REPORT
# of the
RED LAKE RESIDENT GEOLOGIST

by

A.P. Pryslak

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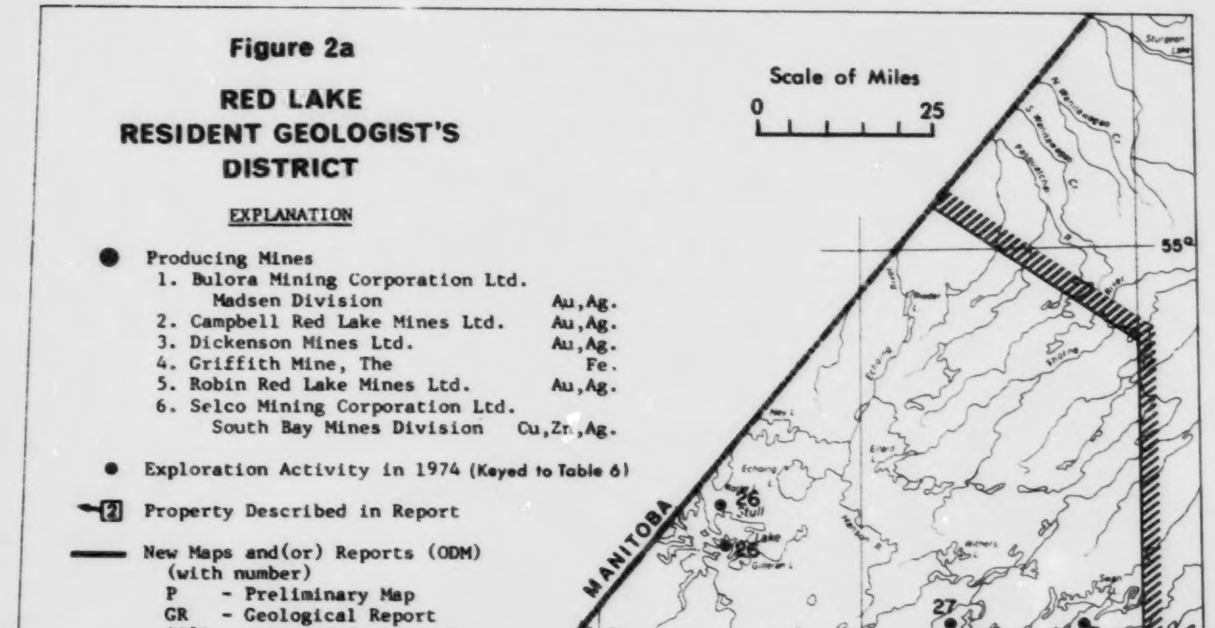

Figure 2a

RED LAKE RESIDENT GEOLOGIST'S DISTRICT

Scale of Miles
0
25
EXPLANATION
● Producing Mines
1. Bulora Mining Corporation Ltd. Madsen Division Au,Ag.
2. Campbell Red Lake Mines Ltd. Au,Ag.
3. Dickenson Mines Ltd. Au,Ag.
4. Griffith Mine, The Fe.
5. Robin Red Lake Mines Ltd. Au,Ag.
6. Selco Mining Corporation Ltd. South Bay Mines Division Cu,Zn,Ag.
● Exploration Activity in 1974 (Keyed to Table 6)
2 Property Described in Report
New Maps and(or) Reports (ODM) (with number)
P - Preliminary Map
GR - Geological Report
2292 - Coloured Geological Map
▨ Boundary of Resident Geologist's District
MANITOBA
26
26
27
27
27
14
2292
26
26
26
Sachigo
Sachigo River
Stull
Little Sachigo Lake
Finger Lake
Sandy Lake
SANDY LAKE
Muskrat Dam Lake
Severn
Sturgeon Lake
55°
54°
53°
95°
94°
93°
92°
91°
91°30'

Adjoins Figure 2b

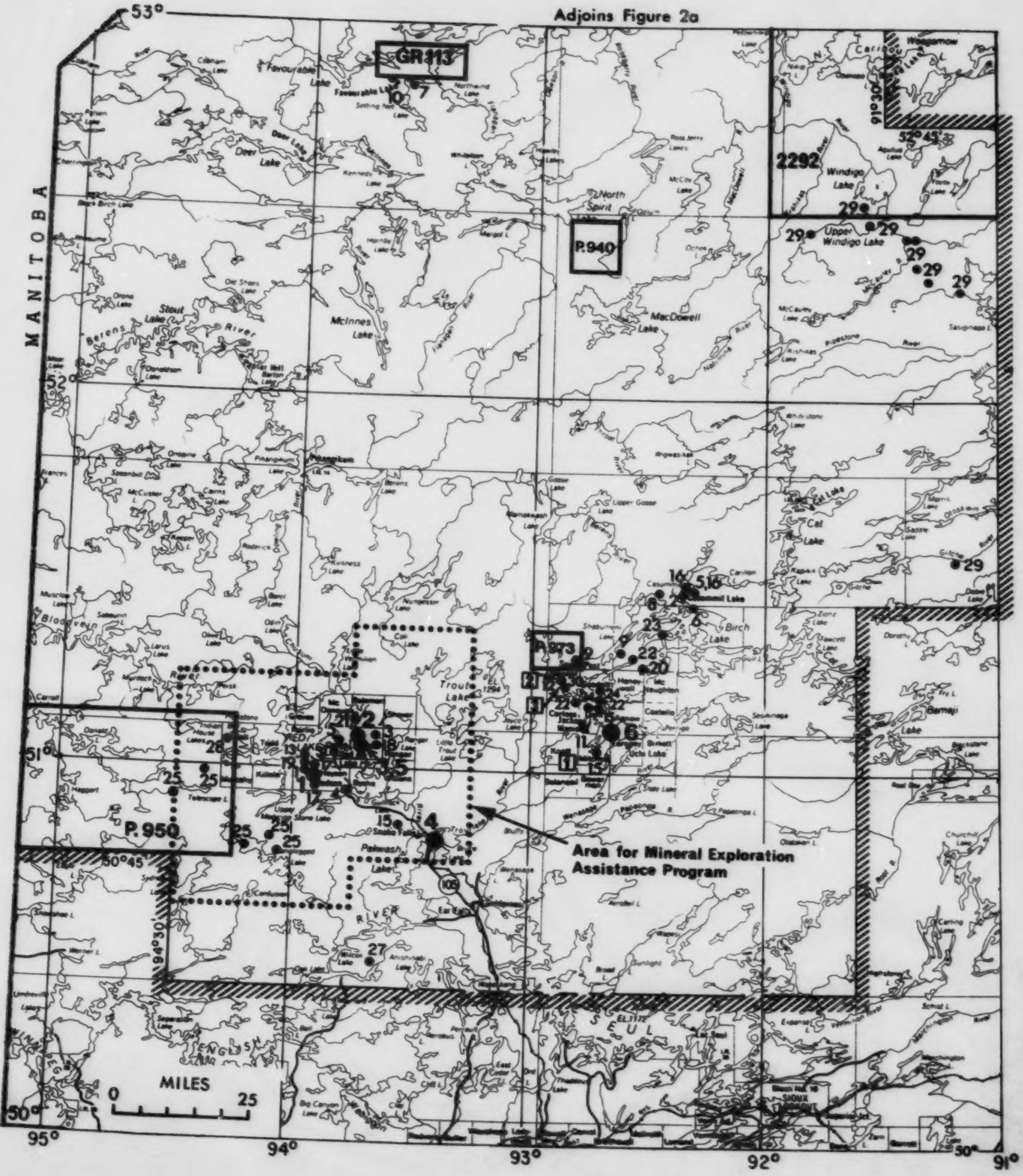
Adjoins Figure 2a
53°
52°
51°
50°45'
50°
95°
94°
93°
92°
91°
91°30'
94°30'
52°45'
50°30'
MANITOBA
GR113
P.940
2292
P.873
P.950
Area for Mineral Exploration Assistance Program
MILES
0
25
Favourable Lake
Deer Lake
North Spirit
McInnes Lake
MacDowell Lake
Stout Lake
Berens River
Windigo Lake
Upper Windigo Lake
Cat Lake
Birch Lake
Trout Lake
RED LAKE
Pakwash Lake
Bloodvein
Pikangikum
Bamaji Lake
Sioux Lookout
SEUL
ENGLISH RIVER
105
1
2
3
4
5
6
7
10
13
15
16
17
19
20
22
23
25
27
28
29

Figure 2b

1974 REPORT
# of the
RED LAKE RESIDENT GEOLOGIST

by

A.P. Pryslak[1]

INTRODUCTION: The present staff at the Red Lake Resident Geologist's office consists of the writer (Resident Geologist), W.W. Valliant (Geological Assistant) and C.M. Uhrina (Secretary). Uhrina assumed her duties in August after the resignation of J. McIntyre. D. Dumontier served as a technician during the summer months under the "Students Working on Resource Development" program of "Experience '74".

RESIDENT GEOLOGIST'S ACTIVITIES: Consultation on various aspects of geology with prospectors, mineral exploration personel, university staff and Ministry personnel was the most actively solicited service provided by the writer. An increasing demand was noted for consultative time by Ministry personnel.

The major project conducted for the Ministry was a geological evaluation of the Marboy mine (McMarmac mine) in Dome Township, formerly owned by Marboy Mines Limited which surrendered its charter in 1973. The 16 patented claims and property reverted to the crown and the area was withdrawn from staking. Total production from the mine was 46,323 ounces of gold and 1,539 ounces of silver from 153,000 tons of ore milled between 1940 and 1944 and in 1947-48 (Ontario Division of Mines Statistical Files). A brief evaluation of the minerals present in the tailings and rock dumps and an evaluation of the mineral potential of the property was conducted.

Short visits were made to the producing properties of the Campbell Red Lake Mines Limited, Dickenson Mines Limited, Bulora Mining Corporation Limited, Madsen Division (formerly Madsen Red Lake Mines Limited) and Selco Mining Corporation Limited, South Bay mine. A brief examination was made of ten other prospects and occurrences by either the writer or his assistant. Several days were spent with each of the field parties of the Precambrian Geology Section, Geological Branch. One party was located in the Earngey-Costello Townships area, near Uchi Lake, and the second in the English River area (Operation Kenora-Sydney Lake), southwest of Red Lake. Two geological research parties, sponsored by the Centre for Precambrian Studies and the University of Manitoba, respectively, were visited in the Pakwash and Favorable Lakes area.

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Geological Assistant, W.W. Valliant devoted much of his time in "Data Series" map compilation. Approximately two weeks of his time were spent on fire duty and another two weeks on field work with a Precambrian Geology Section field party (Operation Kenora-Sydney Lake). He was also responsible for sampling of tailings and rock dumps on the Marboy property, examined several mineral occurrences and indexed diamond drill core specimens and air photos.

Conventions attended during the year included: (i) The Geological Association of Canada, Western Section in Vancouver; (ii) Prospectors and Developers Association in Toronto; and (iii) 20th Annual Institute on Lake Superior Geology in Sault Ste. Marie. The Institute on Lake Superior Geology convention and associated field trip in the Sudbury area were attended as part of the annual Geological Branch field trip.

A program for career opportunities in the mining industry and several geological field trips were organized for the district high school students. W. Valliant gave a lecture on local geology to one group of Junior Rangers.

GEOLOGICAL BRANCH ACTIVITIES: Staff from the Precambrian Geology Section conducted two projects in the Red Lake area. P.C. Thurston continued detailed mapping in the Birch-Uchi Lakes metavolcanic-metasedimentary belt, covering Agnew and Costello Townships. Mapping of the north part of Operation Kenora-Sydney Lake was conducted by F.W. Breaks and assistants. Summary reports of their projects appear in ODM publication MP59.

EXPLORATION ACTIVITY: Mineral exploration activity in the Red Lake Mining Division continued to decline in 1974. A total of 1339 claims were recorded in 1974, down 17 percent from 1973. Assessment work credits (in days) decreased by approximately 30 percent over 1973 (data from Mining Recorder's Office, Red Lake).

The majority of activity was centred in the Red Lake and Uchi Lake areas. Approximately two-thirds of the programs were directed towards the exploration for precious metals. Cochenour Willans Gold Mines Limited continued its feasibility studies on the Wilmar Mines Limited property in Dome Township. Surface and underground diamond drilling on the granodiorite zone continued through 1974. Preparatory work is currently being carried out to run a bulk sample through the Cochenour Willans mill.

Sabina Industries Limited has begun a major exploration program on the McFinley Red Lake Gold Mines Limited prospect in Bateman Township. Some prospecting and trenching were carried out during the summer months and a detailed ground magnetometer survey was recently completed. A diamond drilling program is scheduled to commence shortly and underground exploration is planned for next summer (President's Report to Shareholders of Sabina Industries Limited, 1974).

Aiken-Russet Red Lake Mines Limited carried out a major program of diamond drilling on their property located in Baird Township. Just prior to freeze-up a bulldozer was employed to expose a gold-bearing zone in metavolcanic tuffs.

Because of the current high price of gold, exploration programs are being initiated on other gold prospects and occurrences in the Red Lake and Uchi Lake areas.

Some of the exploration programs during 1974 were directed towards base metals. Union Miniere Explorations and Mining Corporation Limited (UMEX) conducted a major program in the Upper Windigo Lake area and Sherritt Gordon Mines Limited carried out major programs in the Swan Lake and Oak Lake areas.

A review of mineral exploration activities known to have been carried out in the Red Lake Resident Geologist's District in 1974 is given in Table 6, and the locations are shown on Figure 2.

MINERAL EXPLORATION ASSISTANCE PROGRAM: The Provincial Government's Mineral Exploration Assistance Program (MEAP) was continued in 1974. Nine new contracts were signed for a total exploration value of $282,505.00 with the government committed to refund $90,778.32. The total commitments in 1974 were less than in 1973, when eleven contracts were signed for a value of $663,503.00. A summary of the first 3 years of the Mineral Exploration Assistance Program is given in ODM open file report OFR5114.

PROPERTY EXAMINATIONS: Although a total of 10 properties were examined and sampled during the summer months, a brief description is given of only 3 on which there is no information either in assessment files or in publications. The location of the properties described are given in Figure 2.

(1) G. Hemming Gold Occurrence, Knott Township: A gold occurrence, located in the southeast part of Knott Township and held by G. Hemming of Red Lake, was examined in July, 1974. Three separate showings were mapped and sampled. None of the quartz veins, associated with showings, were located by the writer and assistants while mapping the area in 1970 (Pryslak 1971).

The property is underlain by intermediate tuff which is intruded by a series of northeast-trending feldspar porphyry and gabbro dikes; all the rocks are metamorphosed. The quartz veins occur at or near the contact between sheared tuff and gabbro. The main showing is located 6,200 feet (1900 m) west and 4,000 feet (1200 m) north of the southeast corner of Knott Township. A 10-inch (25 cm) wide quartz vein, trending N30E and dipping 70SE, is exposed in a pit 6 by 7 by 5 feet (1.8 by 2.1 by 1.5 m) deep. The vein contains rare specks of galena and fine visible gold. Three grab samples collected by the writer and assayed by the Mineral Research Branch contained: (i) 0.11 ounces gold per ton, 0.13 ounces silver per ton; (ii) 0.59 ounces gold per ton, 0.41 ounces silver per ton; and (iii) trace amounts of gold and silver.

Quartz veins, ranging from 5 to 14 feet (1.5 to 4.3 m) in width and exposed over a length of 35 feet (11 m), occur approximately 2,000 feet (610 m) southwest of the main showing. The quartz veins occur along a gabbro-tuff contact which is on strike with the main showing. Two grab samples and one 4-foot (1.2 m) chip sample were collected and assayed by the Mineral Research Branch. The samples contained nil values in gold and silver.

A third showing is located on the north shore of a small lake 3,400 feet (1030 m) east-northeast of the main showing. The quartz vein ranges from 1 to 7 feet (0.3 to 2 m) in width, can be traced over a strike length of 82 feet (25 m) and occurs along the south contact of a gabbro dike. The best assay from six grab samples collected by the writer, was 0.01 ounces gold per ton (assays by Mineral Research Branch, Ontario Division of Mines). G. Hemming reported (personal communication) that the vein was drilled a number of years ago and that 3.0 feet (0.9 m) of quartz intersected in the drilling assayed 0.10 ounces gold per ton.

(2) W. Hermiston Zinc-Silver Occurrence, Skinner Township: W. Hermiston of Red Lake holds eight claims in Skinner Township. A sulphide showing on the property was examined and sampled by the writer and assistant.

The claims are underlain by a sequence of mafic metavolcanic flows with minor interflow metasediments and felsic to intermediate tuff. The sequence strikes northwest and dips steeply north. A series of west- to northwest-trending gabbro dikes intrudes the layered sequence of rocks. All bedrock is Archean in age.

A sulphide-bearing felsic tuff has been exposed by three trenches over a length of 40 feet (12 m) and a width of 30 feet (9 m). The mineralized zone strikes N70W and dips 55N. The tuff is in contact with gabbro to the north. Muskeg covers the south contact of the tuff. The typical tuff is sericitized and contains about 5 percent pyrite and pyrrhotite, 1 percent sphalerite and rare chalcopyrite. Silicified zones within the tuff vary from 1 to 10 feet (0.3 to 3 m) in width and contain about 10 percent pyrite, 5 percent sphalerite and rare galena and chalcopyrite. A 3-foot (0.9 m) chip sample taken by the writer across the best mineralized zone contained 4.97 percent zinc, 1.66 ounces silver per ton and a trace of gold (assay by Mineral Research Branch, Ontario Division of Mines).

Although further work is required to evaluate the economic potential of the occurrence, it is significant that the mineralization occurs in an area underlain predominantly by mafic metavolcanics.

(3) B. Vihonen Copper-Gold Occurrence, Skinner Township: A total of 33 claims were staked in the vicinity of the former Dunkin prospect in Skinner Township by B. Vihonen of Madsen, Ontario. The property was examined and samples collected by the writer and his assistant in July.

The main Dunkin vein was sampled by the writer in 1972 (Pryslak 1972, p.20). The copper-gold showing lies 800 feet (240 m) east and 200 feet (60 m) south of the Dunkin shaft. A series of trenches and strippings have exposed quartz veins in a shear zone in metamorphosed gabbro. The shear zone strikes N50E and dips approximately 15 to 25NW. Quartz veins varying from 1 inch (2.5 cm) to 3 feet (0.9 m) in width occur in the shear zone. The sheared gabbro contains approximately 10 percent carbonate and up to 2 percent combined pyrrhotite and chalcopyrite. The quartz veins contain 2 to 3 percent combined pyrite, pyrrhotite and chalcopyrite. A total of 14 chip samples, ranging from 5 inches to 3 feet (13 cm to 0.9 m) in width, were collected and assayed by the Mineral Research Branch. The best gold assay was obtained from a 7-inch (18 cm) wide quartz vein; it contained 0.56 ounces gold per ton and a trace amount of silver. A second 14-inch (36 cm) wide quartz vein was found to contain 1.28 percent copper, and trace amounts of gold and silver. A diamond drill hole was put down under the showing by B. Vihonen. A 1.8 foot (0.6 m) intersection is reported (personal communication) to contain 2.58 ounces gold per ton, 1.73 ounces silver per ton and 2.24 percent copper.

ODM MAPS AND REPORTS ISSUED BY THE GEOLOGICAL BRANCH IN 1974: The following is a list of publications released in 1974 which pertain, in whole or in part, to the Red Lake Resident Geologist's district.

P.932 Earngey Township and part of Birkett Township, District of Kenora (Patricia Portion) (52 N/1W, 52 N/2E). Geology by P.C. Thurston, M. Raudsepp, B.C. Wilson and assistants, 1973. Scale, 1 inch to ¼ mile or 1:15,840.

P.940	Hewitt Lake Area (Eastern Half), District of Kenora (Patricia Portion) (53 C/7). Geology by J. Wood, A.D. Hunter, and assistants, 1973. Scale, 1 inch to ¼ mile or 1:15,840.
P.950	Bulging Lake-Embryo Lake Area, District of Kenora (Patricia Portion) (52 L/14E, 52 L/15, 52 L/16W, 52 M/1W, 52 M/2, 52 M/3E). Geology by F.W. Breaks, R.P. Sage, S.J. d'Appolonia, 1972. Scale, 1 inch to 1 mile or 1:63,360.
P.973	Shabumeni River-Narrow Lake Area (Northwestern Part), District of Kenora (Patricia Portion) (52 N/7W). Geology by A.P. Pryslak and assistants, 1972. Scale, 1 inch to ¼ mile or 1:15,840.
Map 2229	Index to Aeromagnetic Maps of Ontario, Revised 1974. Scale, 1 inch to 30 miles or 1:1,900,800.
Map 2292	Big Trout Lake-North Caribou Lake, Kenora District (53 A, 53 B, 53 G, 53 H). Geological compilation of area north of Latitude 53° and west of Longitude 90° by G. Bennett and R.A. Riley (1969) with revisions by P.C. Thurston (1973). Remainder of sheet by P.C. Thurston, G.M. Siragusa, and R.P. Sage, 1973. Scale, 1 inch to 4 miles or 1:253,440.
Map 2310	Ontario Mineral Map, compilation by the Geological Branch, Ontario Division of Mines, Revised 1974. Scale, 1 inch to 25 miles or 1:1,584,000.
OFR5103	Selective Retrieval from the Canadian Index to Geoscience Data on (1) Assessment Work (1972, 1973) Filed with the Ontario Division of Mines and (2) Reports Received under Ontario's Mineral Exploration Assistance Program (MEAP) by H.A. Groen.
OFR5104	Ontario Occurrences of Float, Placer Gold Indicator Minerals for Kimberlite, etc. by S.A. Ferguson, 225p., 6 figures.
OFR5114	Mineral Exploration Assistance Program (MEAP), Fiscal Years 1971-72, 1972-73, and 1973-74 by S.A. Ferguson, E. Bayer and S.C. Sun, 1974, 70p.
MP57	Annual Report of Resident Geologist's Section, Geological Branch, 1973; edited by C.R. Kustra, 192p., 22 figures, 17 tables.
MP58	A Regional Approach to the Wabigoon-Quetico Belts and its Bearing on Exploration in Northwestern Ontario; by W.O. Mackasey, C.E. Blackburn, and N.F. Trowell, 34p.; 8 tables.

MP59	Summary of Field Work, 1974, by the Geological Branch; edited by V.G. Milne, D.F. Hewitt, and K.D. Card, 206p. plus various figures and key maps.
GR113	Geology of the Trout Lakes Area, District of Kenora (Patricia Portion) (53 C/13, 53 C/14) by L.D. Ayres, 1973, 199p., 25 figures, 27 photographs, 1 chart. Accompanied by Map 2270, scale 1 inch to ½ mile or 1:31,680.
Bulletin 173	Silicosis in Hardrock Miners in Ontario (A Further Study), by J.F. Paterson, 48p., 10 tables, 6 figures.

RECENT PUBLICATION AND REFERENCES:

Berezowsky, M.
1972: A Study of the 2A Orebody at South Bay Mines, Northwestern Ontario; Unpublished B.Sc. Thesis, University of Toronto. (Copy of manuscript in Resident Geologist's Files, Ontario Ministry of Natural Resources, Red Lake).

Centre for Precambrian Studies
1973: 1973 Annual Report of the Centre for Precambrian Studies; University of Manitoba, Winnipeg, 92p.

Fahlgren, J.E.J.
1974: An Analysis of Gold Mining in the Context of Present Economic Conditions; Unpublished Paper Presented to the Annual West Meeting of Canadian Inst. Mining and Met., October 1974. (Copy of manuscript in Resident Geologist's files, Ontario Ministry of Natural Resources, Red Lake).

Moore, R.I.
1974: A Northwestern Ontario Exploration Target; Unpublished B.Sc. Thesis, Queen's University, 1974. (Copy of manuscript in Resident Geologist's files, Ontario Ministry of Natural Resources, Red Lake).

Pryslak, A.P.
1971: Knott Township, District of Kenora (Patricia Portion); Ontario Dept. Mines and Northern Affairs, Prelim. Map P.635, Geol. Ser., scale 1 inch to ¼ mile. Geology 1970.

1972: Narrow Lake-Shabumeni River Area, District of Kenora (Patricia Portion); p.17-22 in Summary of Field Work, 1972, edited by V.G. Milne and D.F. Hewitt, Ontario Div. Mines, MP53, 165p.

Smith, T.E. and Longstaffe, F.J.
1974: Archean Rocks of Shoshonitic Affinities at Bijou Point, Northwestern Ontario; Canadian J. Earth Sci., Vol.11, No. 10, p.1407-1413.

Table 6 Exploration Activity in 1974

The following is a list of individuals and companies known to be engaged in exploration within the Red Lake Mining Division in 1974, and the type of work undertaken in each case. The numbers correspond to the numbered areas on Figure

	Individual or Company	Activity
1.	Aiken-Russet Red Lake Mines Ltd.	Diamond drilling and bulldozing in Baird Tp.
2.	Bonnacord Explorations Ltd.	Diamond drilling and ground geophysics on New Jason mine property in Casummit Lake area.
3.	Campbell Red Lake Mines Ltd.	Line cutting on Lennie and former Kiltie claims, Balmer Tp.
4.	Claremont Mines Ltd.	Ground Mag and EM, trenching and diamond drilling in Heyson Tp.
5.	Cochenour Willans Gold Mines Ltd.	Exploration drift and diamond drilling on Wilmar prospect, Dome Tp.; diamond drilling in Casummit Lake area (Kostynuk option).
6.	Crawford, A.	Prospecting in the Birch Lake area.
7.	Dickenson Mines Ltd.	Trenching in the Setting Net Creek area; ground geophysics on the Laddie claims, Balmer Tp.
8.	Dome Exploration (Canada) Ltd.	Diamond drilling in the Mink Lake area (Kostynuk option).
9.	Dundee Palliser Resources Inc.	Trenching and geology in the Shabumeni River (Hermiston claims) and the Shabumeni Lake area.
10.	East West Resources Ltd.	Underground sampling and diamond drilling at the Berens River mine of Zahavy Mines Ltd. Favorable Lake area.
11.	Frank, R.	Trenching in Dent Tp.
12.	Hermiston, W.	Stripping in Skinner Tp.
13.	Humlin Red Lake Mines Ltd.	Ground geophysics, prospecting and trenching in Baird and Fairlie Tps.
14.	Johnson, E.	Diamond drilling in the Seeber Lake area.
15.	Kerr Addison Mines Ltd.	Ground geophysics in Dent, Mitchell and Bowerman Tps. and Dixie Lake area.

	Individual or Company	Activity
16.	Kostynuk, M.	Trenching in the Casummit Lake area.
17.	Madsen Red Lake Mines Ltd. (Bulora Mining Corporation Ltd.)	Diamond drilling and underground exploration in the area of No. 1 shaft, Baird Tp.
18.	Peterson, Chas.	Diamond drilling and bulldozing in Balmer Tp.
19.	Redruth Gold Mines Ltd.	Ground geophysics, prospecting and trenching in Baird Tp.
20.	Ronda Copper Mines Ltd.	Geological mapping in Honeywell, McNaughton Tps. and Grace Lake area.
21.	Sabina Industries Ltd.	Ground geophysics and trenching on the McFinley Red Lake Gold Mines Ltd. prospect, Bateman Tp.
22.	St. Joseph Explorations Ltd.	Line cutting and prospecting on former Hudson-Patricia mine, Dent Tp., diamond drilling in Corless Tp. and Swain Lake area.
23.	Sander, H.	Ground geophysics in the Birch Lake area (Goldsearch option).
24.	Selco Mining Corp. Ltd.	Ground geophysics and diamond drilling in Dent and Goodall Tps.
25.	Selco Mining Corp. Ltd. - Coin Lake Gold Mines Ltd. - Cochenour Willans Gold Mines Ltd.	Ground geophysics and diamond drilling in Embryo, Telescope, Insect and Long-legged Lakes areas.
26.	Serem Ltd.	Diamond drilling in Muskratdam and Stull Lakes area.
27.	Sherritt Gordon Mines Ltd.	Diamond drilling in the Swan Lake and Oak Lake areas.
28.	Stupack, Wm.	Diamond drilling in Ball Tp.
29.	Union Miniere Explorations and Mining Corp. Ltd. (UMEX)	Diamond drilling in Upper Windigo and Cannon Lakes area.
30.	Vihonen, B.	Trenching, stripping and diamond drilling in Skinner Tp.
31.	Xtra Developments Inc.	Diamond drilling on Orlac prospect, Dome Tp. (St. Fabien Copper Mines Ltd. option).

Table 7 Assessment Work Received in 1974

Red Lake Mining Division

Abbreviations

Air - Airborne
BM - Base Metals
CS - Core Specimens
DD(6)410' - 6 diamond drill holes totalling 410 feet
EM - Electromagnetic survey
GL - Geological Survey
Mag - Magnetometer survey
Tr - Trenching
VLFEM - Very low frequency electromagnetic survey
U.G.D.D. - Underground diamond drilling

CLAIM MAP AREA	NTS	RECORDER HOLDER (OPTIONER)	TYPE OF DATA - YEAR PERFORMED	METALS SOUGHT	RED LAKE FILE NO.	TORONTO FILE NO.
Aljo Lake	53J/12	Canadian Nickel Co. Ltd.	DD(2) 431'/1973	BM	53J/NW	
Ball Tp.	52N/1	Stupack, Wm.	DD(1) 125'/1974 cs/1974		Ball Tp.	
Belanger Tp.	52K/15 52N/2	Copper-Lode Mines Ltd.	DD(1) 320'/1969 DD(4) 1447'/1970 DD(2) 824'/1973 Air EM, Mag/1972	Cu,Zn,Ag	Belanger Tp.	2.1326
Brownstone, Seagrave and Casummit Lakes	52N/8	AMAX Exploration, Inc.	Mag, EM/1973	BM	52N/SE	2.1456
Cannon Lake	52O/11	Union Miniere Explorations and Mining Corp. Ltd.(UMEX)	DD(2) 1154'/1974	BM	52O/NW	
Casummit Lake	52N/8	Cochenour Willans Gold Mines Ltd. (Kostynuk option)	DD(12) 2120'/1974	Au, Ag	52N/SE	
		Dome Exploration (Canada) Ltd. (Kostynuk option)	DD(6) 4223'/1974	Au	52N/SE	
		Kostynuk, M.	Tr/1974	Au	52N/SE	
Corless Tp.	52N/2	St. Joseph Explorations Ltd.	DD(3) 2136'/1974	BM	52N/SE	
Dent Tp.	52N/2	Selco Mining Corp. Ltd.	DD(2) 722'/1974	BM	Dent Tp.	
		Shilo Mines Ltd.	GL/1973	Au	Dent Tp.	2.1441
Fairlie Tp.	52N/4 52M/1	Dome Exploration (Canada) Ltd.	DD(7) 2583'/1974	Au, Ag	Fairlie Tp.	
Fredart Lake	52K/15	Rommark Mines Ltd.	Air EM, Mag/1972		52K/NW	2.1337
Goodall Tp.	52N/2,7	Selco Mining Corp. Ltd.	DD(1) 357'/1974	BM	Goodall Tp.	
Gerow Lake	53G/13	Sherritt Gordon Mines Ltd.	DD(13) 4818'/1974	BM	53G/NW	
Heyson Tp.	52K/13 52N/4	Powley, M.S.	DD(2) 351'/1974		Heyson Tp.	
		Claremont Mines Ltd. (Sokoloff option)	EM/1974	Cu,Ni,Au	Heyson Tp.	2.1570
Honeywell Tp.	52N/8	St. Joseph Explorations Ltd.	EM,Mag/1973	Cu	Honeywell Tp.	2.1350
Honeywell, McNaughton Tp.	52N/8	Ronda Copper Mines Ltd.	GL/1974	Au	Honeywell Tp.	2.1554
Karas Lake	52K/14	Hudson Bay Exploration and Development Co. Ltd.	Mag,DD(4) 1753'/1973	Zn,Cu	52K/NW	
Kippen Lake	53G/5	Serem Ltd.	DD(1) 400'/1974 Mag,EM/1973 Mag,EM/1974	BM	53G/SW	2.1353 2.1464
Kivinen Lake	53G/13	Sherritt Gordon Mines Ltd.	DD(6) 2080'/1974	BM	53G/NW	
Mitchell Tp.	52N/2	Selco Mining Corp. Ltd.	DD(1) 571'/1974	BM	Mitchell Tp.	
Nameypoke Lake	53J/3	Sherritt Gordon Mines Ltd.	DD(1) 267'/1974	BM	53J/SW	
Nango Lake	53B/6	Union Miniere Explorations and Mining Corp. (UMEX)	DD(1) 210'/1973 DD(1) 149'/1974	BM	53B/SW	
Ponask Lake	53F/16	Canadian Nickel Co. Ltd.	DD(1) 162'/1973	BM	53F/SE	
Rainfall Lake	52L/8	Cochenour Willans Gold Mines Ltd.	DD(3) 805'/1974	BM	52L/SE	

CLAIM MAP AREA	NTS	RECORDER HOLDER (OPTIONER)	TYPE OF DATA - YEAR PERFORMED	METALS SOUGHT	RED LAKE FILE NO.	TORONTO FILE NO.
Rapson Bay (Stull Lake)	53K/7	Serem Ltd.	DD(1) 550'/1974	BM	53K/SE	
Rottenfish River	53F/8	Serem Ltd.	DD(1) 300'/1974	BM	53F/SE	
Rowley Lake	53J/3	Sherritt Gordon Mines Ltd.	DD(2) 655'/1974	BM	53J/SW	
Satterly Lake	52N/8	Ronda Copper Mines Ltd.	GL/1974		52N/SE	2.1555
Satterly Lake and Casummit Lake	52N/8	Sanders, H. (Goldsearch option)	Mag,EM/1974		52N/SE	2.1443
Shabumeni Lake (Swain Lake)	52N/7	St. Joseph Explorations Ltd.	DD(3) 1823'/1974	Cu	52N/SE	
Shinbone Lake	53B/5	Union Miniere Explorations and Mining Corp. (UMEX)	DD(3) 776'/1974	BM	53B/SW	
Skinner Tp.	52N/2	Alcock, S.	Trenching/1974	Au	Skinner Tp	
Stirland Lake	53B/6	Union Miniere Explorations and Mining Corp. (UMEX)	DD(1) 270'/1974	BM	53B/SW	
Sydney Lake	52L/9	Cochenour Willans Gold Mines Ltd.	DD(6) 923'/1973	Zn,Cu,Ag	52L/NE	
Upper Windigo Lake	53B/5,6	Union Miniere Explorations and Mining Corp. (UMEX)	DD(3) 730'/1973	BM	53B/SW	
Vanderbrink Lake	53F/14	Johnson, E.	DD(1) 160'/1974		53F/NW	
Vollett Lake	53B/5,6	Union Miniere Explorations and Mining Corp. (UMEX)	DD(4) 934'/1974	BM	53B/SW	
West of Kippen Lk.	53F/8	Serem Ltd.	DD(2) 1000'/1974	BM	53F/SE	
Windigo Lake	53B/12	Union Miniere Explorations and Mining Corp. (UMEX)	DD(4) 901'/1973 DD(1) 150'/1974	BM	53B/NW	
	53B/12	Noranda Exploration Co. Ltd.	EM,Mag/1973	BM	53B/NW	2.1277
Winters Lake	53J/3,4	Sherritt Gordon Mines Ltd.	DD(4) 1272'/1974	BM	53J/SW	

Table 8 Other Information Received in 1974

For abbreviations, see Table 7

CLAIM MAP AREA	NTS	RECORDER HOLDER (OPTIONER)	TYPE OF DATA - YEAR PERFORMED	METALS SOUGHT	RED LAKE FILE NO.	TORONTO FILE NO.
Baird Tp.	52K/13	Aiken-Russet Red Lake Mines Ltd.	Geol.,DD(22) 7189'/1974 Property Report, 1973 DD Report, 1974	Au	Baird Tp.	MEAP RL-27
		Madsen Red Lake Gold Mines Ltd. (Bulora Mining Corporation Ltd.)	DD(9) 5313'/1973	Au	Baird Tp.	MEAP RL-25
Ball Tp.	52M/1	Biron Bay Gold Mines Ltd.	Prospectus		Ball Tp.	
		Cole Gold Mines Ltd. (Kerr Addison Mines Ltd. option)	DD(19) 6917'/1973 Mag,EM	Au	Ball Tp.	MEAP RL-19
Balmer Tp.	52N/4	Hudson Bay Exploration & Dev. Co. Ltd.	EM17/1973 DD(1) 508'/1973	BM	Balmer Tp.	MEAP RL-17
		Redcon Gold Mines Ltd.	Mag,EM,progress report DD(7) 2501'/1972	BM,Au	Balmer Tp.	MEAP RL-15
		Dickenson Mines Ltd.	Air EM/1972		Balmer Tp.	MEAP RL-14
Byshe Tp.	52N/4 52K/13	Hudson Bay Expl. & Dev. Co. Ltd.	EM17, DD(1) 284'/1973	BM	Byshe Tp.	MEAP RL-17
Dome Tp.	52N/4	Cochenour Willans Gold Mines Ltd.	Surface DD(19) 10,529'; U.G. DD(70) 14,516'; DD report, 1973; Study on Expl. possibilities, 1973; level plans		Dome Tp.	MEAP RL-24
			DD(1) 536'/1973			MEAP RL-13
		Xtra Developments Inc.	Mag,VLFEM/1973 U.G. DD(3) 3483'/1973 Surface DD(4) 4715'/1973		Dome Tp.	MEAP RL-18
Fairlie Tp.	52N/4 52M/1	Peterson, Chas. W.	DD(10) 3225'/1974	Au	Fairlie Tp.	MEAP RL-21
Heyson Tp.	52K/13	Hudson Bay Exploration and Development Co. Ltd.	EM17/1973	BM	Heyson Tp.	MEAP RL-17
Sydney Lake and Rainfall Lake	52L/9,16	Cochenour Willans Gold Mines Ltd.	4GL reports/1973	BM	52L/NW	MEAP RL-23

1974 REPORT
# of the
SIOUX LOOKOUT RESIDENT GEOLOGIST

by

P.A. Palonen and A.A. Speed

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FIGURES

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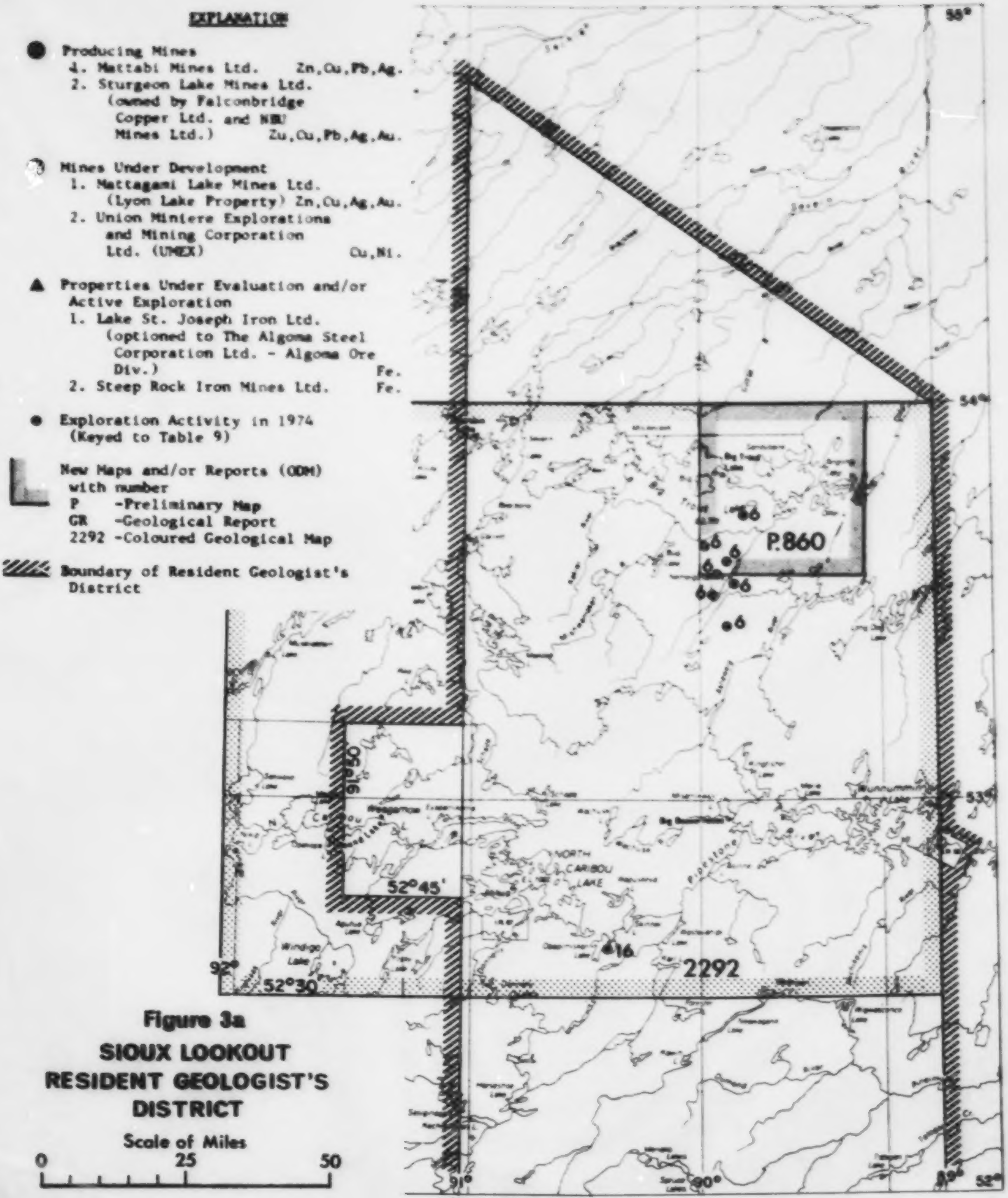
EXPLANATION
● Producing Mines
1. Mattabi Mines Ltd. Zn,Cu,Pb,Ag.
2. Sturgeon Lake Mines Ltd. (owned by Falconbridge Copper Ltd. and NBU Mines Ltd.) Zu,Cu,Pb,Ag,Au.
Mines Under Development
1. Mattagami Lake Mines Ltd. (Lyon Lake Property) Zn,Cu,Ag,Au.
2. Union Miniere Explorations and Mining Corporation Ltd. (UMEX) Cu,Ni.
▲ Properties Under Evaluation and/or Active Exploration
1. Lake St. Joseph Iron Ltd. (optioned to The Algoma Steel Corporation Ltd. - Algoma Ore Div.) Fe.
2. Steep Rock Iron Mines Ltd. Fe.
● Exploration Activity in 1974 (Keyed to Table 9)
New Maps and/or Reports (ODM) with number
P -Preliminary Map
GR -Geological Report
2292 -Coloured Geological Map
▨ Boundary of Resident Geologist's District
56°
54°
53°
52°
52°45'
52°30'
92°
91°
90°
89°
91°30'
P.860
2292
6
16
NORTH CARIBOU LAKE
Pipestone
Windigo Lake
Big Trout Lake

Adjoins Figure 3b

Figure 3a
SIOUX LOOKOUT
RESIDENT GEOLOGIST'S
DISTRICT

Scale of Miles
0 25 50

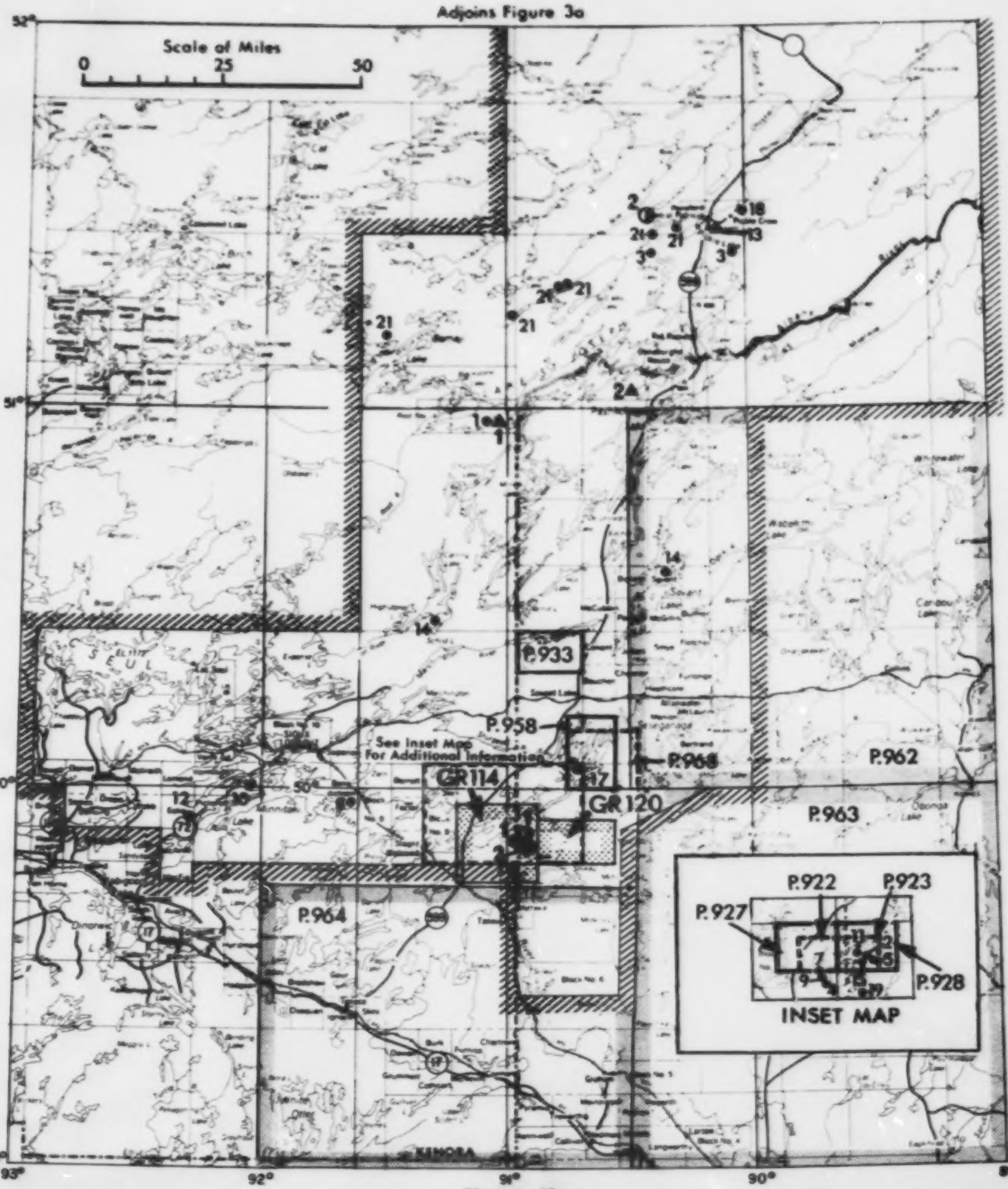
Adjoins Figure 3a
Scale of Miles
0
25
50
52°
51°
50°
49°
93°
92°
91°
90°
89°
SEUL
See Inset Map For Additional Information
P.933
P.958
P.962
P.963
P.964
P.968
GR114
GR120
INSET MAP
P.922
P.923
P.927
P.928
KENORA
1
1a
2
2A
3
12
13
14
17
18
21

Figure 3b

1974 REPORT

of the

SIOUX LOOKOUT RESIDENT GEOLOGIST

by

P.A. Palonen[1] and A.A. Speed[2]

INTRODUCTION: The Resident Geologist's office was officially opened in Sioux Lookout in January of 1974 and is presently staffed by a complement of two full-time personnel. The Geologist's Assistant is A.A. Speed, and part-time secretarial duties are provided by M. Sitar. One summer student, G. Maxwell, was employed during the past summer as a field assistant under the "Student Working on Resource Development" program.

The level of exploration in the Patricia Mining Division continued to decrease in 1974 with the number of claims staked (1011 claims) falling by 33 percent from the previous year. The number of companies known to be active in the area has been reduced by 45 percent to approximately 25.

Two mines were in production during 1974 while two others are under development. Exploration for base metals comprised the dominant activity for the summer in response to rising world prices for copper. No significant increase in exploration for gold has been noted in the area, although numerous small showings are known from previous activity.

RESIDENT GEOLOGIST'S ACTIVITIES: Members of the Sioux Lookout Resident Geologist's office were chiefly involved with the problems of establishing a new office and personnel orientation. With the establishment of new district boundaries, the task of gathering and re-organizing assessment work files from parts of three pre-existing areas was accomplished. Several technical presentations were made to area public schools and community service organizations introducing the science of geology as well as the services provided through the new Resident Geologist's office. Career orientation talks were presented to Junior Ranger camps at Aaron and Ojibway Provincial Parks. Five "Data Series" maps covering active areas to the south of Sturgeon Lake have been drafted for future publication. Detailed mapping of the Sandybeach Lake area was begun, and the southern half of McAree Township has been completed (see ODM publication MP59).

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[1] Resident Geologist, Ontario Ministry of Natural Resources, 18½ 4th Avenue North, Sioux Lookout, P0V 2T0.

[2] Resident Geologist's Assistant.

GEOLOGICAL BRANCH ACTIVITIES: In the Farrington Lake area, detailed geological mapping was carried out by J.R. Trusler, formerly of the Precambrian Geology Section. A similar program was undertaken in the Sturgeon Lake-Chevrier Township area by N.F. Trowell of the Precambrian Geology Section. A gravity survey of the Sturgeon Lake metavolcanic-metasedimentary belt was conducted by R.B. Barlow of the Geophysics/Geochemistry Section; Barlow also carried out a ground magnetic survey in the area immediately to the east of north Sturgeon Lake. A high resolution airborne magnetometer survey was conducted in the Bamaji-Fry Lakes area under contract to the Geophysics/Geochemistry Section.

RESEARCH BY OTHER ORGANIZATIONS: The Sioux Lookout area falls within the area of study of the Superior Geotraverse Project under direction of A.M. Goodwin, of the University of Toronto. Field work was carried out on the English River gneiss belt by N.B.W. Harris[1] during the past summer. In addition, a doctoral thesis project on composition and stratigraphy of the volcanic flows of the Minnitaki Lake area was initiated by D. Page of McMaster University.

MINING AND DEVELOPMENT OPERATIONS: Sturgeon Lake Mines Limited commenced production of copper-zinc-silver-gold ore in 1974 at a rate of 800 tons per day from an open pit development. Mill capacity is rated at 1200 tons per day.

Mattabi Mines Limited continued to produce copper-zinc-silver ore from the Sturgeon Lake property at a rate of about 3400 tons per day. When the reserves mineable by open pit are exhausted, underground development will be capable of maintaining the mill rate.

The Lyon Lake deposit, also located in the Sturgeon Lake area and owned by Mattagami Lake Mines Limited, is expected to begin production in 1975 at a rate of 1000 tons per day. During 1974, a shaft collar was installed and sinking commenced.

Union Miniere Explorations and Mining Corporation Limited (UMEX) is continuing an underground exploration program to outline copper-nickel reserves on their Thierry property in the Pickle Lake area. In preparation for open pit production, the northeast end of the deposit has been stripped of overburden and site preparation for permanent buildings is well underway. Planned production is 4000 tons per day.

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[1] Post-doctoral fellow, Department of Geology, University of Toronto.

ODM MAPS AND REPORTS ISSUED BY THE GEOLOGICAL BRANCH IN 1974: The following is a list of publications released in 1974 which pertain, in whole or in part, to the Sioux Lookout Resident Geologist's district.

P.860	Operation Winisk Lake, Big Trout Lake, District of Kenora (Patricia Portion) (53 H/13, 53 H/14W). Geology by R.P. Sage and W.R. Troup, 1971. Compilation 1972, 1973. Scale 1 inch to 1 mile or 1:63,360.
P.922	Magnetic Survey of Sturgeon Lake (Western Part), District of Kenora (42 G/15W). Geophysics by R.B. Barlow, 1973. Geology by N.F. Trowell, 1969. Scale 1 inch to ¼ mile or 1:15,840.
P.923	Magnetic Survey of Sturgeon Lake (Eastern Part), Districts of Kenora and Thunder Bay (42 G/14E, 42 G/15W). Geophysics by R.B. Barlow, 1973. Geology by N.F. Trowell, 1969. Scale 1 inch to ¼ mile or 1:15,840.
P.927	Penassi Lake Area, District of Kenora (52 G/14E); Kenora Data Series. Data compiled by H.L. King and J.D. Werry, 1972. Scale 1 inch to ¼ mile or 1:15,840.
P.928	Six Mile Lake Area, Districts of Kenora and Thunder Bay (52 G/14W); Kenora Data Series. Data compiled by H.L. King and J.D. Werry, 1972. Scale 1 inch to ¼ mile or 1:15,840.
P.933	Houghton-Hough Lakes Area, District of Thunder Bay (52 J/7). Geology by W.D. Bond and assistants, 1973. Scale 1 inch to ¼ mile or 1:15,840.
P.958	Ground Vertical Field Magnetics, Sturgeon Lake Area, Ouilette Lake-Coveney Island Sheet, District of Thunder Bay (52 J/2). Geophysical survey and compilation by R.B. Barlow and assistants, 1973. Scale 1 inch to ¼ mile or 1:15,840.
P.962	Operation Ignace-Armstrong, Caribou Lake-Pashkokogan Lake Sheet, District of Thunder Bay (52 I/3,4,5,6,11,12,13,14; 52 J/1,2,7,8, 9,10,15,16). Geology by R.P. Sage, F.W. Breaks, G.M. Stott, G.M. McWilliams, and R.P. Bowen and other assistants, 1973. Scale 1 inch to 2 miles or 1:126,720.
P.963	Operation Ignace-Armstrong, Obonga Lake-Lac des Iles Sheet, District of Thunder Bay, (52 G/1,8,9,16; 53 H/3,4,5,6,11,12,13, 14). Geology by R.P. Sage, F.W. Breaks, G.M. Stott, G.M. McWilliams, and D. Robertson, and other assistants, 1973. Scale 1 inch to 2 miles or 1:126,720.

P.964	Operation Ignace-Armstrong, Ignace-Graham Sheet, Districts of Thunder Bay, Rainy River and Kenora (52 G/2,3,4,5,6,7,10,11,12). Geology by R.P. Sage, F.W. Breaks, G.M. Stott, G.M. McWilliams and S. Atkinson, and other assistants, 1973. Scale 1 inch to 2 miles or 1:126,720.
P.968	Squaw Lake-Sturgeon Lake Area, Northeast Arm-Squaw Lake Sheet, District of Thunder Bay, (52 J/2W, 52 J/1W). Geology by N.F. Trowell and assistants, 1972, 1973. Scale 1 inch to ¼ mile or 1:15,840.
Map 2229	Index to Aeromagnetic Maps of Ontario, Revised 1974. Scale 1 inch to 30 miles or 1:1,900,800.
Map 2268	Granite Bay, Sturgeon Lake, Kenora and Thunder Bay Districts (52 G/14, 52 G/15). Geology by N.F. Trowell and assistants, 1969. Scale 1 inch to ½ mile or 1:31,680.
Map 2269	Bell Lake, Kenora and Thunder Bay Districts (52 G/14, 52 G/15). Geology by N.F. Trowell and assistants, 1969. Scale 1 inch to ½ mile or 1:31,680.
Map 2284	Glitter Lake, Thunder Bay District (52 G/15). Geology by N.F. Trowell and assistants, 1970. Scale 1 inch to ½ mile or 1:31,680.
Map 2292	Big Trout Lake-North Caribou Lake, Kenora District (53 A; 53 B; 53 G; 53 H). Geological compilation of area north of Latitude 53 and west of Longitude 90 by G. Bennett and R.A. Riley (1969) with revisions by P.C. Thurston (1973). Remainder of sheet by P.C. Thurston, G.M. Siragusa, and R.P. Sage, 1973. Scale 1 inch to 4 miles or 1:253,440.
Map 2310	Ontario Mineral Map, compilation by the Geological Branch, Ontario Division of Mines, Revised 1974. Scale 1 inch to 25 miles or 1:1,584,000.
OFR5103	Selective Retrieval from the Canadian Index to Geoscience Data on (1) Assessment Work (1972, 1973) Filed with the Ontario Division of Mines and (2) Reports Received under Ontario's Mineral Exploration Assistance Program (MEAP) by H.A. Groen.
OFR5104	Ontario Occurrences of Float, Placer Gold, Indicator Minerals for Kimberlite, etc. by S.A. Ferguson, 225p., 6 figures.

OFR5114	Mineral Exploration Assistance Program (MEAP), Fiscal Years 1971-72, 1972-73, and 1973-74 by S.A. Ferguson, E. Bayer and S.C. Sun, 1974, 70p.
OFR5115	Geology of the Quest Lake-Sturgeon Lake Area, District of Thunder Bay (52 G/15), by N.F. Trowell; 143p., 4 tables, 7 photos (xerox copies) and Maps P.761 and P.762, scale 1 inch to ¼ mile or 1:15,840.
GR114:	Geology of the Bell Lake-Sturgeon Lake Area, Districts of Kenora and Thunder Bay (52 G/14, 52 G/15). By N.F. Trowell, 67p., 4 tables, 6 figures, 14 photos. Accompanied by: Maps 2268 and 2269, scale 1 inch to ½ mile or 1:31,680.
GR120	Geology of the Glitter Lake Area, District of Thunder Bay (52 G/15), geology by N.F. Trowell, 1974, 31p. Accompanied by Map 2284 scale 1 inch to ½ mile or 1:31,680.
MP57	Annual Report of Resident Geologists' Section, Geological Branch, 1973. Edited by C.R. Kustra, 192p., 22 figures, 17 tables.
MP58	A Regional Approach to the Wabigoon-Quetico Belts and its Bearing on Exploration in Northwestern Ontario by W.O. Mackasey, C.E. Blackburn, and N.F. Trowell, 34p., 8 tables.
MP59	Summary of Field Work, 1974, by the Geological Branch. Edited by V.G. Milne, D.F. Hewitt, and K.D. Card, 206p. plus various figures and key maps.
1973 Review	Ontario Mineral Review 1973, 136p., with various tables, figures and photographs.

Table 9 Exploration Activity in 1974

The following is a list of individuals and mining companies engaged in exploration in the Sioux Lookout Resident Geologist's district in 1974, and the type of work done in each case. The numbers correspond to the numbered areas on Figure 3.

INDIVIDUAL or COMPANY	TYPE OF WORK
1. Algoma Steel Corp. Ltd., The -Algoma Ore Division	Diamond drilling in the Trist Lake area.
2. Amax Exploration, Inc.	Ground electromagnetic survey and geochemical survey in the Six Mile Lake area.
3. Bayard Resources Ltd.	Diamond drilling in the Kapkichi Lake and Dona Lake areas.
4. Camisso, A.	Airborne gamma-ray spectrometer survey in the Valora Lake area.
5. Canadex Mining Corp. Ltd	Diamond drilling in the Six Mile Lake area.
6. Canadian Nickel Company Ltd.	Diamond drilling in the Nemeigusabins Lake, south of Nemeigusabins Lake, and Beardy Creek areas. Ground magnetometer survey in the Beardy Creek Area.
7. Chimo Gold Mines Ltd.	Diamond drilling in the Valora Lake area.
8. Combined Metal Mines Ltd.	Diamond drilling in the Smock Lake area.
9. Consolidated Morrison Explorations Ltd.	Diamond drilling in the Valora Lake area.

INDIVIDUAL or COMPANY		TYPE OF WORK
10.	Dome Exploration (Canada) Ltd.	Diamond drilling in the Kabik Lake and Pickerel Twp. area.
11.	Falconbridge Nickel Mines Ltd.	Diamond drilling in the Six Mile Lake area.
12.	Rayrock Mines Ltd.	Diamond drilling in Echo Twp.
13.	Haahti, John, O.	Ground electromagnetic and magnetometer surveys in the Tarp Lake area.
14.	Hudson's Bay Oil & Gas Co. Ltd.	Rock trenching, electromagnetic and magnetometer survey and diamond drilling in Savant Twp. Diamond drilling in the Highstone Lake area.
15.	Mattagami Lake Mines Ltd.	Diamond drilling in the Six Mile Lake area.
16.	Musselwhite, A.	Rock trenching and geological survey in the Zeemel Lake area.
17.	O'Flaherty, K. F.	Rock trenching in the Squaw Lake area.
18.	Reading, K. A. L.	Ground electromagnetic and magnetometer survey in the Tarp and Dona Lakes areas.
19.	Sturgeon Lake Mines Ltd	Ground electromagnetic and magnetometer surveys in the Bell Lake area.
20.	Thompson, W. M.	Diamond drilling in the Valora Lake area.
21.	Union Miniere Explors. and M'g. Corp. Ltd. (UMEX)	Diamond drilling in the Duffel, Fry, Kapkichi, Wright, Caley, Ponsford, and Wesleyan Lakes area.

Table 10 Assessment Work Received in 1974

PATRICIA MINING DIVISION
SYMBOLS AND ABBREVIATIONS

Au - gold
Zn - zinc
Cu - copper
py - pyrite
po - pyrrhotite
cp - chalcopyrite
mag - magnetite
il - ilmonite
sph - sphalerite
gf - graphite or graphitic tuff/argillite
hem - hematite
Fe - Iron
AM - Airborne Magnetometer Survey

ASPEC - Airborne Spectrometer Survey
Mag - Ground Magnetometer Survey
Geochem - Ground Geochemical Survey
3 DDH (1071') - 3 diamond drill holes totalling 1071 feet
TR - rock trenching
Geol - Geological Survey
VLF - very low frequency electromagnetic survey
VHEM - combined vertical - horizontal loop electromagnetic survey
CEM - ground electromagnetic survey
AEM - Airborne Electromagnetic Survey

AREA	OWNERSHIP	COMMODITY FOUND	TYPE OF DATA YEAR PERFORMED	N.T.S.	TORONTO FILE NO.
Beardy Creek	Canadian Nickel Co. Ltd.	py,po,sph, cp (trace)	1 DDH (305') 1973	53 H/12 NW	
	Canadian Nickel Co. Ltd.		Mag, 1974	53 H/12 NW	2.1526
Bell Lake	Sturgeon Lake Mines Ltd.		CEM, VLF, Mag 1974	52 G/15 SW	2.1539
Caley Lake	UMEX	py,po,cp,sph	1 DDH (308') 1974		
Carling Is.	Algoma Steel Corp. Ltd.	Fe	1 DDH (150') 1974	52 O/2 SE	
Dona Lake	Bayard Resources Ltd.	py,po,mag, cp (trace)	4 DDH (1130') 1973	52 O/8 NE	
Duffel Lake	UMEX	py, po, mag	1 DDH (179') 1974	52 O/2 NW	
Echo Twp.	Goldlund Mines Ltd.		3 DDH (361') 1973	52 F/16 NW	
Fry Lake	UMEX	po, py	3 DDH (569') 1974	52 O/3 NW	
Highstone Lake	Hudson's Bay Oil & Gas Co. Ltd.	po (trace), py (trace)	1 DDH (134') 1973	52 J/6 NW	
Kabik L. and Pickerel Twp.	Dome Explor. (Canada) Ltd.	py, gf, po (trace), sph (trace), cp (trace), mag (trace).	3 DDH (2,857') 1974	52 F/16 NE	
Kapkichi Lake	Bayard Resources Ltd.	py,po,mag, cp (trace)	6 DDH (2,886') 1973	52 O/8 NW	
	UMEX	mag,cp (trace) py (trace),po (trace).	2 DDH (1,408') 1973	52 O/8 NW	
Nemeigusabins Lake	Canadian Nickel Co. Ltd.		5 DDH (2482') 1973 2 DDH (1,324') 1974	53 H/12 SW	
Ponsford Lake	UMEX	cp (trace) py (trace)	4 DDH (3,023') 1973	52 O/9 SW	
Savant Twp.	Hudson's Bay Oil & Gas Co. Ltd.	py,cp (trace)	TR, 1973 VHEM, Mag, 1973	52 J/9 SW 52 J/9 SW	
		py, po, cp (trace)	1 DDH (139') 1973	52 J/9 SW	
		py, po, cp (trace)	3 DDH (471') 1974	52 J/9 SW	

AREA	OWNERSHIP	COMMODITY FOUND	TYPE OF DATA YEAR PERFORMED	N.T.S.	TORONTO FILE NO.
Six Mile Lake	Amax Explor., Inc.	Zn (trace) Cu (trace)	Geochem, 1970 VLF, 1973	52 G/15 NW 52 G/15 NW	2.1330
	Canadex Mining Corp. Ltd.	po, py, mag, cp (trace)	1 DDH (608') 1974	52 G/15 NW	
Six Mile Lake (cont'd)	Falconbridge Nickel Mines Ltd.	gf, py (trace), po (trace)	2 DDH (1,438') 1973	52 G/15 NW	
		gf, py (trace) po (trace)	7 DDH (4,722') 1973	52 G/15 NW	
		py, mag	2 DDH (608') 1974	52 G/15 NW	
	Mattagami Lake Mines Ltd.	il, hem	1 DDH (764') 1973	52 G/15 NW	
	Thompson, W.M.		VLF, Mag, 1973	52 G/15 NW	
Smock Lake	Combined Metal Mines Ltd.	po, py, cp (trace), sph (trace)	3 DDH (1,289') 1973	52 G/13 NW	
South of Nemeigusabins Lake	Canadian Nickel Co. Ltd.	po, py, cp	11 DDH (3,962') 1973	53 H/5 NW	
Squaw Lake	O'Flaherty, K. F.		TR, 1973	52 J/2 SE	
Tarp Lake	Haahti, John, C		VLF, Mag, 1974	52 O/9 SE	2.1442
Tarp & Dona Lakes	Reading, K.A.L	po, mag	VLF, Mag, 1974	52 O/9 SE 52 O/8 NE	2.1525
Trist Lake	Algoma Steel Corp. Ltd.	py, mag, il, hem	1 DDH (637') 1973	52 J/14 NE	
Valora Lake	Camisso, A.		ASPEC, 1972	52 G/14 SE	2.1106
	Chimo Gold Mines Ltd.	py, po (trace), cp (trace)	3 DDH (1,200') 1973	52 G/14 SE	
		py, po, mag, cp (trace)	2 DDH (936') 1974	52 G/14 SE	
	Consolidated Morrison Explors. Ltd.		1 DDH (410') 1974	52 G/14 SE	
	Thompson, W.M.	py (trace)	3 DDH (1,503') 1973	52 G/14 SE	
Wesleyan Lake	UMEX	py, po	3 DDH (609') 1974	52 O/4 NE	
Wright Lake	UMEX	py, po, cp, sph	2 DDH (536') 1972	52 O/7 SW	
		py, po, cp, sph	1 DDH (187') 1974	52 O/7 SW	
Zeemel Lake	Musselwhite, A	Au	TR, 1973	53 B/9 SW	
		Au	Geol, 1973	53 B/9 SW	2.1500

Table 11 Other Information Received in 1974

OWNERSHIP	AREA	COMMODITY FOUND	TYPE OF DATA YEAR PERFORMED	N.T.S.	TORONTO FILE NO.
Hudson's Bay Oil & Gas Co. Ltd.	Beckington L.	po, py, cp (trace)	2 DDH (308') 1973	52 J/2 NE	
	Endogaki Lake	po, gf	1 DDH (201') 1973	52 J/9 SW	
	Grebe Lake & McCubbin Twp.	po, mag, gf, cp (trace)	4 DDH (1,152') 1973	52 J/9 NE	
	Houghton L.	po, py, cp (trace)	2 DDH (290') 1973	52 J/7 SW	
	Jabez Lake	po	1 DDH (133') 1973	52 J/9 NW	
	Kimmewin L.	po, py, cp (trace)	2 DDH (532') 1973	52 J/6 SW	
	Solitude L.	po, mag, gf, cp (trace)	4 DDH (691') 1973	52 J/10 SE	

OWNERSHIP	AREA	COMMODITY FOUND	TYPE OF DATA YEAR PERFORMED	N.T.S.	TORONTO FILE NO.
UMEX-The International Nickel Co. of Canada Ltd.	Badesdawa River	py, po	2 DDH (216')	52 P/12 SE	
	Caley Lake	po,py,cp,mag	9 DDH (2,373')	52 O/7 SE	
	Collinshaw L.	po, py, gf, cp (trace)	11 DDH (3,077')	52 P/12 NW	
	Coucheemoskog Lake	po, py, mag	10 DDH (1,417')	52 O/8 SE	
	Dobie Lake	py, po, mag	2 DDH (546')	52 O/6 NE	
	Dona Lake	py,po	5 DDH (1,125')	52 O/8NE/NW	
	Drum Lake		2 DDH (720')	52 O/3 NE	
	First Loon L.	po,py,gf,mag	13 DDH (4,880')	52 P/12 SW	
	Kapkichi Lake	po, py	1 DDH (118')	52 O/8 NW	
	Kawashe Lake	py,po,mag,gf	14 DDH (3,866')	52 O/6 SE	
	Little Ochig Lake	py, po, cp,	5 DDH (1,108')	52 O/8 SW	
	Meen Lake	po, py, mag	6 DDH (1,312')	52 O/6 NW	
	Nabemakoseka Lake	py, po, cp	1 DDH (350')	52 O/6 SW	
	Ponsford Lake		1 DDH (325')	52 O/9 SW	
	south of Nanos Lake	po, py, cp	7 DDH (2,159')	52 O/7 NE	
	Tarp Lake	py,po	17 DDH (6,030') (approx.)	52 O/9 SE	
	Weiberg Lake	py, po	4 DDH (688')	52 P/5 NW	
	Wright Lake	py, po, mag	26 DDH (7,594') (approx.)	52 O/7 SW	

Table 12 Data Received from The Ontario Securities Commission in 1974

PATRICIA MINING DIVISION

AREA	OWNERSHIP	COMMODITY FOUND	TYPE OF DATA YEAR PERFORMED	N.T.S.	TORONTO FILE NO.
Dona Lake	Pickle Crow Explors. Ltd.		Statement of Material Facts, 1973	52 O/8 NE	
Penassi Lake	Murgor Explors. Ltd.		Prospectus and Summary Report, 1973	52 G/14 NE	63.3131
Six Mile Lake	Canadex M'g. Corp. Ltd.		Prospectus and Summary Report, 1973	52 G/15 NW	63.3136
	Norlex Mines Ltd.		Prospectus, 1974	52 G/15 NW	63.3137
	Santa Maria Mines Ltd.		Prospectus and Progress Rep. 1973	52 G/15 NW	63.3135
Smock Lake	Combined Metal Mines Ltd.		Prospectus and Summary Report, 1972	53 G/13 NE	63.3019
Smye & Jutten Townships	New Kelore Mines Ltd.		Prospectus and Statement of Material Facts, 1973	52 J/7NE/SE 52 J/8NW/SW	
Smye & McGillis Twps. (Valora Lake)	Amalgamated Rare Earth Mines Ltd.		Prospectus and Property Rep., 1973	52 J/8NW/SW	

1974 REPORT
# of the
NORTH CENTRAL REGIONAL GEOLOGIST

by

K.G. Fenwick

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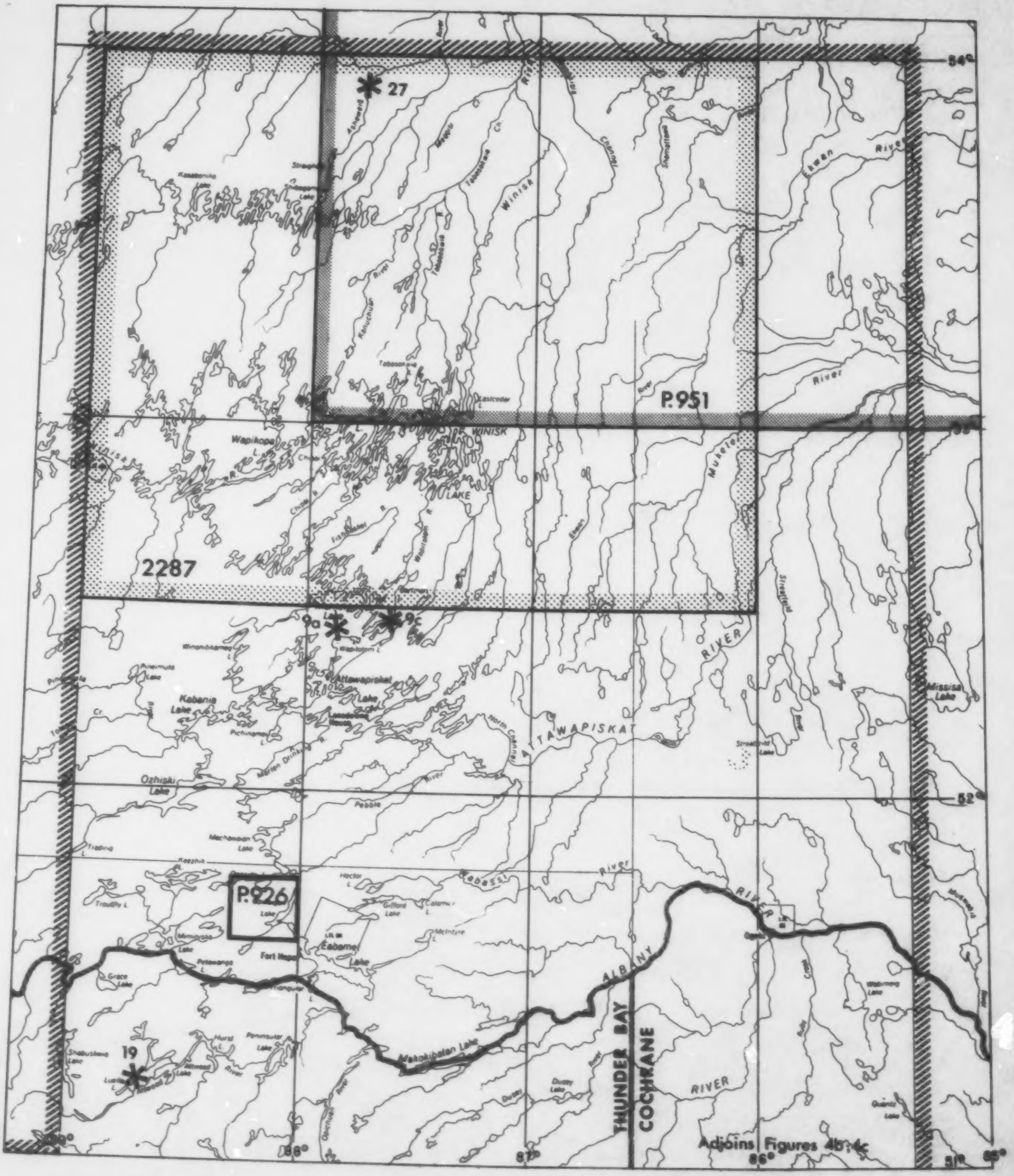
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86°
87°
88°
89°
P.951
2287
P.926
27
9a
9c
19
Winisk River
WINISK LAKE
Ekwan River
River
Wapikopa Lake
Asheweig River
Channel
Shamattawa River
Muketei
Streatfeild
Streatfeild Lake
Mississa Lake
ATTAWAPISKAT RIVER
North Channel
Attawapiskat Lake
Lansdowne House
Kabania Lake
Pineimuta Lake
Pichinamo L.
Marten Drinking R.
Ozhiski Lake
Pebble River
Trading
Machawaian Lake
Keezhik
Hector L.
Kabassi River
Gifford Lake
Calamus L.
McIntyre L.
Eabamet Lake
Fort Hope
Grace Lake
Miminiska
Petawanga L.
Makokibatan Lake
ALBANY RIVER
Shabuskwia Lake
Ponnasular Lake
Kenoguise Lake
Washi Lake
Dusey Lake
Ogoki River
RIVER
THUNDER BAY
COCHRANE
Adjoins Figures 4b, 4c

Figure 4a

NORTH CENTRAL REGION

Scale of Miles

0 25 50

EXPLANATION

New Maps and(or) Reports with numbers (OGM)
P - Preliminary Map
2287 - Coloured Geological Map

▨ Boundary of North Central Region

* Assessment Work Filed in 1974 (Keyed to Table 13)

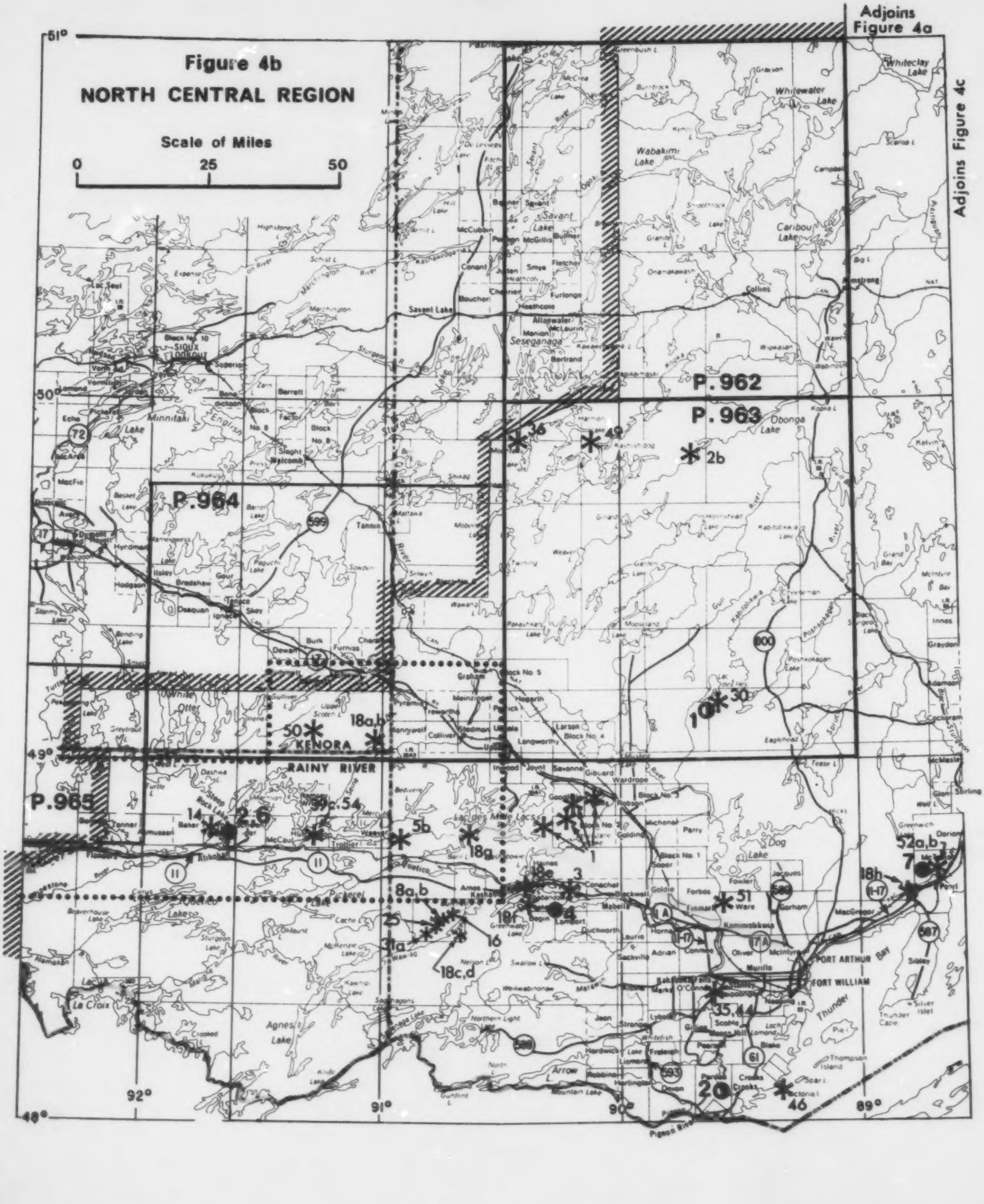

Figure 4b
NORTH CENTRAL REGION

Adjoins Figure 4a
Adjoins Figure 4c
Scale of Miles
0
25
50
51°
50°
49°
48°
92°
91°
90°
89°
P. 962
P. 963
P. 964
P. 965
KENORA
RAINY RIVER
SIOUX LOOKOUT
Lac Seul
Savant Lake
Sesegamaga
Wabakimi Lake
Caribou Lake
Whitewater Lake
Whiteclay Lake
Obonga Lake
Minnitaki Lake
Dog Lake
PORT ARTHUR
FORT WILLIAM
Thunder Bay
Lac des Mille Lacs
Agnes Lake
Arrow L
Pigeon River
36
49
2b
10
30
50
18a,b
14
2,6
39,c,54
5b
18g
1
3
18e
18f
4
8a,b
25
31a
16
18c,d
51
35,44
20
46
18h
52a,b
7
72
17
11
599
800
590
61
593
587
11-17
17A

Adjoins Figure 4a

Adjoins Figure 4b

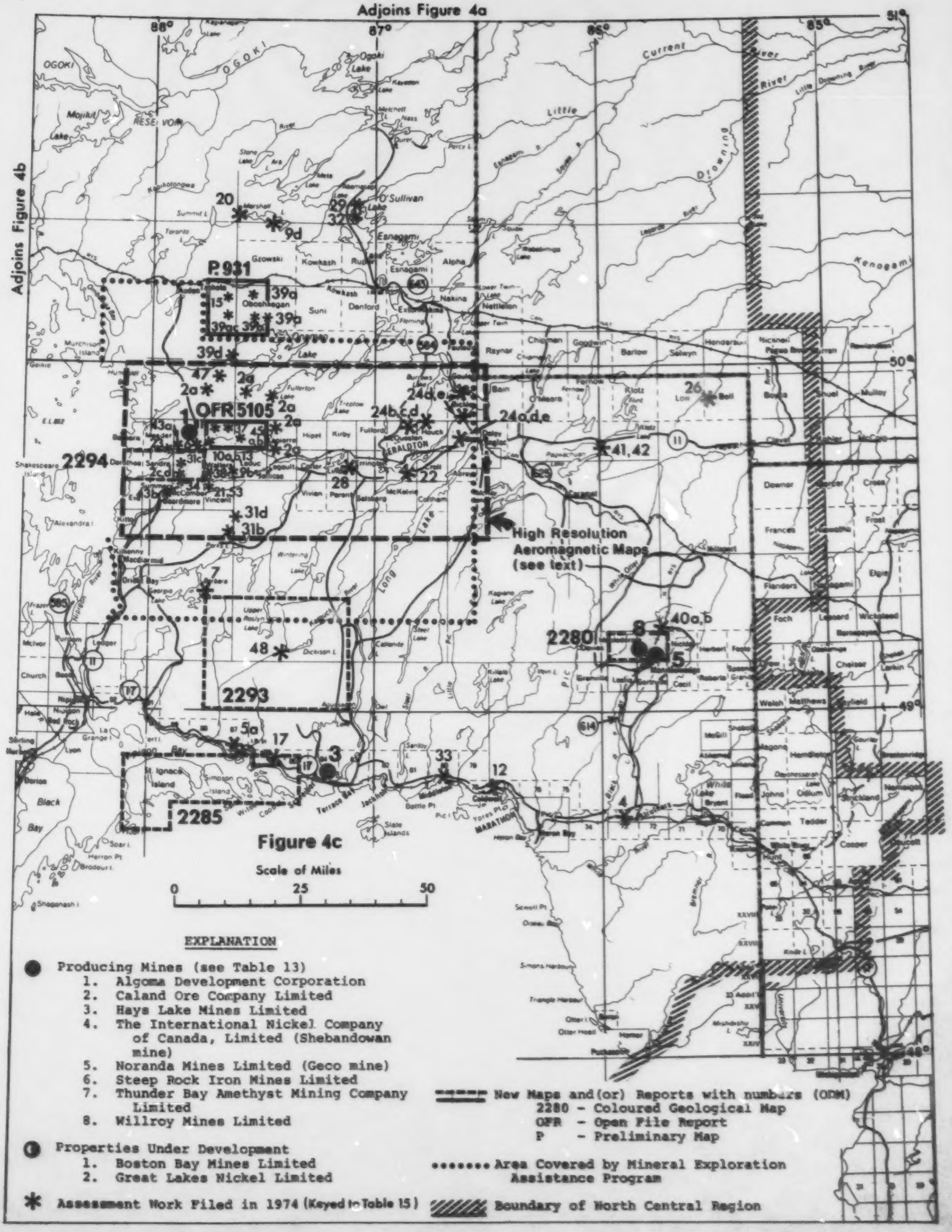
88°
87°
86°
85°
51°
50°
49°
48°
P.931
OFR 5105
2294
2280
2293
2285
High Resolution Aeromagnetic Maps (see text)
GERALDTON
MARATHON
Scale of Miles
0
25
50

Figure 4c

EXPLANATION

- ● Producing Mines (see Table 13)
  1. Algoma Development Corporation
  2. Caland Ore Company Limited
  3. Hays Lake Mines Limited
  4. The International Nickel Company of Canada, Limited (Shebandowan mine)
  5. Noranda Mines Limited (Geco mine)
  6. Steep Rock Iron Mines Limited
  7. Thunder Bay Amethyst Mining Company Limited
  8. Willroy Mines Limited
- ◐ Properties Under Development
  1. Boston Bay Mines Limited
  2. Great Lakes Nickel Limited
- * Assessment Work Filed in 1974 (Keyed to Table 15)

▬ ▬ New Maps and(or) Reports with numbers (ODM)
2280 - Coloured Geological Map
OFR - Open File Report
P - Preliminary Map

••••••• Area Covered by Mineral Exploration Assistance Program

▨ Boundary of North Central Region

1974 REPORT
# of the
NORTH CENTRAL REGIONAL GEOLOGIST

by

K.G. Fenwick[1]

INTRODUCTION: As a result of re-organization, the Regional Geologist's office in Thunder Bay is now also responsible for portions of the Rainy River District (Atikokan) and Kenora District, Patricia Portion (see Figure 4). The North Central Region has the same boundaries as the Thunder Bay Mining Division. All related assessment files and other data were transferred to this office at the beginning of 1974.

In January of 1975, the Regional Geologist's office was moved to the new Ontario Government Building at 435 James Street South in Thunder Bay South. This office is staffed by K.G. Fenwick, Regional Geologist, J.F. Scott, Geological Assistant and I. Balcombe, Secretary. In addition, W.H. McIlwaine, field geologist of the Precambrian Geology Section of the Geological Branch is stationed in the office.

For the first time in four years, the North Central Region witnessed an increase in claim staking activity. This increase was mainly due to a renewed interest in the platinum-metal bearing gabbroic rocks south of Lac des Iles (R. Poutanen, Mining Recorder, Thunder Bay, personal communication).

Follow-up exploration work (Figure 4 and Table 15) was widespread throughout the North Central Region, with the Geraldton-Beardmore area receiving the most attention. Activity in this area was definitely encouraged by the Provincial Government's Mineral Exploration Assistance Program.

In the North Central Region, there were eight mines producing during 1974 (see Table 13) of which two were small gold recovery properties, in operation only during the summer months (see section on Mining and Exploration Activity).

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REGIONAL GEOLOGISTS'ACTIVITIES: In addition to the regular duties which involve consultation on various aspects of the geology and exploration in the North Central Region, the writer was engaged in the detailed mapping project of Goldie and Horne Townships. Visits were made to five of the Ontario Division of Mines' field parties in the North Central Region during the field season. Familiarization tours of the operations of the Shebandowan mine, Geco mine, Caland Iron mine and Steep Rock Iron mine were undertaken. During the course of the year, the Prospectors and Developers Association convention in Toronto, the Twentieth Annual Institute on Lake Superior Geology in Sault Ste. Marie, Ontario and the Joint Annual Meeting of the Geological Association of Canada and the Mineralogical Association of Canada in St. John's, Newfoundland were attended.

The office staff is becoming increasingly involved in strategic land use planning, reports on the geology and geomorphology of Provincial Parks, and in lake management planning. The writer is a member on the Regional Management Committee and the Regional and Resident Geologists' Technical Committee.

GEOLOGICAL BRANCH ACTIVITIES: Six geological mapping projects, directed by the Precambrian Geology Section, three geochemical and Quaternary geology investigations, directed by the Geophysics/Geochemistry Section and the Phanerozoic Geology Section, and one amethyst inventory project, directed by the Mineral Deposits Section, were carried out in the North Central Region in 1974.

W.H. McIlwaine completed a two-year mapping project of the Sapawe Lake area, which is located east of Atikokan. H. Wallace began a two-year survey of the Miminiska Lake area, located 65 miles (105 km) east of Pickle Lake. The Gledhill Lake area, 35 miles (56 km) north of Jellicoe was mapped in detail by S.E. Amukun. R.P. Sage completed the detailed mapping of Slate Islands which are located 7 miles (11 km) south of Terrace Bay and began the mapping of the Prairie Lake carbonatite-alkalic complex. W.O. Mackasey finished a two-year detailed mapping survey of Legault, Colter, Lapierre and Hipel Townships, east of Jellicoe.

L.G. Closs of the Geophysics/Geochemistry Section and E.V. Sado, Phanerozoic Geology Section investigated the metal dispersion in Quaternary deposits overlying and in a down-ice direction from known gold mineralization in the Beardmore area. They also investigated the geochemistry of the soils and vegetation over parts of the Killala Lake alkalic complex and the Prairie Lake carbonatite-alkalic complex.

M.A. Vos of the Mineral Deposits Section did research and field work necessary for the writing of a guide book on the amethyst deposits of Ontario.

A brief description of these projects is outlined in ODM publication MP59.

A week-long mineral education course was held at Thunder Bay by E.B. Freeman of the Geoscience Information Office, Geoservices Section.

RESEARCH AND MAPPING BY OTHER ORGANIZATIONS: The Northwestern Ontario Prospectors Association has received a grant from the Secretary of State (Canada), for the purpose of the project called "Picked Samples". The idea of this project is to preserve and relate the history of the prospectors and the mining in northwestern Ontario.

The Centre for Precambrian Studies at the University of Manitoba, under a grant from the National Research Council of Canada, investigated the Shebandowan Lake metavolcanic belt during the 1974 field season.

The Scholastica Institute of Duluth, Minnesota was awarded an Environmental Education grant, by the American Government, for a project involving the teaching of the geology, petrology and stratigraphy of the rocks within the Lake Superior area and adjacent watershed. The Institute researched our files, reports and coloured slide library.

MINERAL EXPLORATION ASSISTANCE PROGRAM: The provincial Government's incentive program of mineral exploration assistance to designated regions continued in the Geraldton-Beardmore area for the fourth straight year. On April 1st, 1974, the Atikokan area was added to the list of designated areas. Figure 4 outlines the boundaries of the areas that now qualify for exploration assistance in the North Central Region.

MINING AND EXPLORATION ACTIVITY: Eight mines operated in 1974. Operations are summarized in Table 13.

The Algoma Development Corporation, a privately owned company, produced gold and copper from a small operation in Pifher Township. It was in operation in 1974 from April 15th to November 15th. The owners estimate that they mined 20 tons of ore which produced 2 pounds of gold and 2 short tons of copper concentrate which ran 30 percent copper (personal communication 1974).

The Thunder Bay Amethyst Mining Company was open for business in 1974 by the middle of April. It is estimated by the owners that over 20,000 people visited the mine this summer, over 1,000 tons of material were shipped from the mine site by truck and by rail and over 45 tons of material were sold to the visitors of the mine (personal communication 1974).

MINING AND EXPLORATION ACTIVITY: Eight mines operated in 1974. Operations are summarized in Table 13.

Anaconda Iron Ore (Ontario) Limited has a iron property in the Skibi Lake area which is located 30 miles (48 km) north of Nakina, Ontario and is composed of 229 patented and approximately 18 unpatented claims. The iron formation consists of two distinct ore zones, the Briarcliffe-Melchett Lakes zone with widths to 500 feet (150 m) and the Two Mile Lake zone which extends along strike for up to ½ mile (0.8 km) and may attain widths up to 260 feet (78 m) (Ewert 1970, p.1). Ewert (1970, p.3) also states:

> "The Lake Superior Iron Ltd's drilling project of 1955 produced 20,000 ft. of core which showed sufficiently interesting results as to cause Anaconda Co. (Canada) Ltd. to buy up options in the area and carry out an extensive diamond drilling program of their own in the years 1956-57. In the years until 1961 Anaconda carried out, in addition to more extensive diamond drilling, a project of clearing, sampling, trenching and processing of the ore. Currently the iron zone consists of totally cleared, trenched and drilled outcrops."

It has been estimated that there are 335,000,000 tons of iron ore suitable for open pit mining. In May of 1973, an agreement with Anaconda Iron Ore (Ontario) Limited gave Oglebay Norton Company up to one and a half years to organize an consortium to exploit the property (Canadian Mines Handbook, 1974-1975, p.28).

The Algoma Steel Corporation Limited exercised its option to lease 39 claims and licenses of occupation belonging to Little Long Lac Mines Limited in the Geraldton area. The Algoma Steel Corporation Limited carried out a considerable amount of work since taking the option, including over 20,000 feet (6000 m) of surface drilling. This work outlined a magnetite-hematite deposit 9,000 feet (2700 m) long and 600 to 1,200 feet (180-360 m) wide with a soluble iron content of approximately 24 percent. This represents about 325,000,000 tons of open pit ore to a depth of 1,000 feet (300 m) (The Northern Miner, January 3, 1974, p.1). W.A. Jarvis, manager for The Algoma Steel Corporation Limited's Project Development Section (written communication 1973) states:

> "Sufficient encouragement has been had on metallurgical testing to warrant leasing the property. Much additional test work is required to optimize the process method for commerical operations. It is not expected to bring this property into production in the immediate or near future."

In October of 1974, Consolidated Shunsby Mines Limited acquired, by staking, a uranium property, on the west side of Greenwich Lake, on which 16 shallow holes, drilled in the early 1950s, established the presence of uranium mineralization over a strike length of 1,500 feet (450 m). Three holes along a 500-foot (150 m) section of this length returned values per ton of 5.2 pounds, 7.4 pounds, and 1.8 pounds of U_3O_8 over drill intersected widths of 8.9 feet (2.7 m), 7.4 feet (2.3 m) and 5.0 feet (1.5 m) respectively. Diamond drilling on the zone is scheduled to begin in January of 1975 (The Northern Miner, December 12, 1974, p.8).

In May of 1974, Bayard Resources Limited announced plans for reactivation of the old Sapawe Lake Gold Mining Company's property 15 miles (24 km) east of Atikokan, through its new affiliate called Atiko Gold Mines Limited. In the mid-1960s, the Sapawe mine produced 3,718 ounces from 29,580 tons for an average recovery rate of 0.126 ounces gold per ton (The Northern Miner, January 17, 1974, p.21). Magnetometer and detailed geological surveys were carried out during the summer of 1974. The company plans to dewater the shaft (1,015 feet (305 m) deep) by spring of 1975 (personal communication 1974).

In August of 1974, La Luz Mines Limited staked 135 claims, along the north side of McKay Lake, covering a postulated carbonatite complex (see ODM publication MP58, p.18). Geological surveys, line cutting and geophysical surveys are under way and will be followed by diamond drilling if warranted (The Northern Miner, Sept. 5, 1974, p.7).

In January of 1975, 280 claims were staked in an area 5 miles (8 km) northeast of the town of Marathon. This block of claims ties onto the east side of the Anaconda Canada Limited's copper property and is mainly underlain by rhyolitic breccia and felsic feldspar porphyry (see Milne 1967, p.7, Map 2099). At the moment, these claims are in the hands of a staking firm (R. Poutanen, Mining Recorder, Thunder Bay, personal communication 1975).

Hays Lake Mines Limited produced gold from a small operation east of the town of Schreiber. A new rod mill was installed this summer and the company treated 10 to 15 tons of ore that graded 2 ounces gold per ton (written communication 1974).

Rickaby Mines Limited has a 50 claim copper-zinc-silver-gold property in Rickaby Township, 8 miles (13 km) north of Jellicoe. A detailed induced polarization survey has been completed in the area of known mineralization. The president of Rickaby Mines Limited, William Miron, said that 32 diamond drill holes have been completed on the property and that the latest assays show 0.70 percent copper and 0.45 ounces silver per ton (over unspecified widths) at depths which could be mined by open pit methods (The Chronicle-Journal, July 10, 1974, p.21). In September of 1974, a new contract for an additional 10,000 feet (3000 m) of diamond drilling will be initiated (personal communication 1974).

In October of 1974, work was suspended at the copper-nickel property of Great Lakes Nickel Limited in Pardee Township near the City of Thunder Bay, with the operation put on a standby basis. All told, about $10 million has been spent on the property in recent years, including 192,550 feet (57765 m) of surface drilling and 85,899 feet (25770 m) of underground drilling from a 3,417-foot (1025 m) long adit. This work outlined 32,800,000 tons of ore grading 0.36 percent copper and 0.20 percent nickel, with further potential reserves of 40,000,000 tons of the same grade (The Northern Miner, October 10, 1974, p.8). Cost escalations, high interest rates and the present difficulty of projecting future metal prices are given as reasons why work has been suspended at this time by the Swedish firm of Boliden Aktiebolag of Stockholm (The Northern Miner, October 10, 1974, p.1).

The Caland Ore Company Limited in Atikokan announced that its open pit mine operation and pelletizing plant will continue to operate three years past the closing dates previously announced. In 1972, the company indicated that the open pit would be closed in 1976, affecting about 200 workers, while the pelletizing mill would stay open to 1978 (The Chronicle-Journal, October 28, 1974).

Steep Rock Iron Mines Limited had proposed to extend its mining operations into the C zone (leased to Caland Ore Company Limited) in 1977, and it anticipated that it could have continued mining there until 1990, or possibly beyond that date. In its present locality, Steep Rock Iron Mines Limited can foresee operations continuing through 1978, with a possible additional three years depending upon the results of a current study reviewing mining considerations, operating costs, and other factors. But, at this time, it does not appear that Steep Rock Iron Mines Limited will have sufficient ore to bridge the gap until the C zone would become available to it. Thus, Steep Rock Iron Mines Limited is faced with the prospect of possibly having to suspend operations around the end of 1978 (The Northern Miner, November 14, 1974, p.22).

In August of 1973, Knut C. Kuhner, local prospector, restaked the old copper-nickel-palladium-platinum showings of Gunnex Limited (see Pye 1968), south of Lac des Iles. In September of 1974, Kuhner transferred all interest on these claims to J.P. Sheridan. According to The Northern Miner (October 24, 1974, p.1), Sheridan Geophysics Limited disclosed its program in the area following the staking of a large additional block of claims which were turned over to closely associated Boston Bay Mines Limited. Boston Bay Mines Limited, in turn, is controlled by Belleterre Quebec Mines Limited. J.P. Sheridan, Boston Bay Mines Limited's general manager, reported to the shareholders (The Northern Miner, October 24, 1974, p.1) that the diamond drilling program which consisted of 15 diamond drill holes totalling approximately 5,000 feet (1500 m) had located two potential orebodies of significant size and grade, and had indicated a favourable geological structure which may contain additional potential, platinum-palladium ore.

Boston Bay Mines Limited has completed a winter road from Highway 800 to the "C" zone and, at present, is involved in an electromagnetic survey with a drilling program to follow (K.C.Kuhner, personal communication 1975).

RECOMMENDATIONS FOR EXPLORATION: The felsic metavolcanic belt, 5 miles (8 km) northeast of the town of Marathon, may extend as far south as the Heron Bay area and as far east as the Hemlo area. This belt should be prospected for base metals.

ASSESSMENT WORK RECEIVED IN 1974: Assessment work data, excluding mechanical and manual work, received in 1974 is given in Table 15, and a summary of the type of assessment recorded for 1972, 1973 and 1974 is given in Table 14.

UNPUBLISHED THESES RECEIVED IN 1974: The following theses have been added to the Regional Geologist's files and deal with the geology of the North Central Region.

Allen, C.C.
1940: Geology of Poohbah Lake; Ph.D. Thesis, 51p., University of Minnesota, Minnesota.

Ayres, L.D.
1969: Early Precambrian Stratigraphy of Part of Lake Superior, Province Park, Ontario, Canada, and its Implications for the Origin of the Superior Province; Ph.D. Thesis, 396p., Princeton University, Princeton, New Jersey.

Bartley, M.W.
1940: The Geology and Iron Deposits of Steeprock Lake, Ontario; Ph.D. Thesis, 95p., University of Toronto, Toronto, Ontario.

Brown, E.W.
1974: Structure and Petrology of the Wabikan Granodiorite Intrusive; B.Sc. Thesis, 110p., Lakehead University, Thunder Bay, Ontario.

Colcleugh, V.D.
1946: Geology of the Brookbank Gold Deposit; M.Sc. Thesis, 40p., University of Manitoba, Manitoba.

Denn, G.
1952: An Investigation of Steep Rock Lake Iron Ores; B.Sc. Thesis, 42p., Queen's University, Kingston, Ontario.

Enns, E.
1951: The Steep Rock Lake Iron Deposit; B.Sc. Thesis, 30p., Queen's University, Kingston, Ontario.

Francoeur, D.
1972: Study of Diabase Dikes in the Rainy River District, Ontario; B.Sc. Thesis, 77p., University of Ottawa, Ontario.

Grootenboer, J.P.
1971: Former Shorelines in the Kaministikwia Plain and the Geomorphology of the Kakabeka Falls-Stanley Area; B.A. Thesis, 77p., Lakehead University, Thunder Bay, Ontario.

Hillary, E.M.
1974: Petrology of the Sapawe Stock, Rainy River District; B.Sc. Thesis, 67p., Queen's University, Kingston, Ontario.

Huston, W.J.
1956: The Steeprock Manganiferous Foot-Wall Paint; M.Sc. Thesis, 76p., Queen's University, Kingston, Ontario.

Johnston, R.H.
1974: The Determination of the Stratigraphic Relationship Between the Metavolcanics (Keewatin) and the Kashabowie (Coutchiching) Sediments in the Shebandowan Lakes Area: A Structural Approach; B.Sc. Thesis, 41p., University of Waterloo, Waterloo, Ontario.

Joliffe, S.S.
1971: The Character of the Steeprock Ashrock; B.Sc. Thesis, 57p., Queen's University, Kingston, Ontario.

Karvinen, W.O.
1968: The Origin and Petrology of the Mafic and Ultramafic Rocks of the Obonga-Leigh Lakes Area; B.Sc. Thesis, 52p., Queen's University, Kingston, Ontario.

Larsen, C.R.
1974: The Silicate and Sulphide Petrology of the Kawene Lake Intrusion; B.Sc. Thesis, 93p., Lakehead University, Thunder Bay, Ontario.

Marvin, E.H.
1952: Ore Bodies of the Pickle Crow Gold Mines; B.Sc. Thesis, 40p., Queen's University, Kingston, Ontario.

Milne, V.G.
1964: The Petrography and Alteration of Some Spodumene Pegmatites, near Beardmore, Ontario; Ph.D. Thesis, 242p., University of Toronto, Toronto, Ontario.

Paske, B.
1973: The Geology and Geochemistry of the Onaman Lake Property, Northwestern Ontario; B.Sc. Thesis, 51p., Lakehead University, Thunder Bay, Ontario.

Wright, C.M.
1959: Pyrite Zones in the Hanging-wall of the Steep Rock Ore Zone; M.Sc. Thesis, 138p., Queen's University, Kingston, Ontario.

ODM MAPS AND REPORTS ISSUED BY THE GEOLOGICAL BRANCH IN 1974: During 1974, various reports and maps were received. Those containing information about North Central Region are outlined below and the areas covered are located on Figure 4.

P.926 Opikeigan Lake Area, District of Kenora (Patricia Portion), Geology by Henry Wallace, 1973. Scale 1 inch to ½ mile or 1:31,680.

P.931 Tashota Area, District of Thunder Bay, Geology by S.E. Amukun and assistants, 1973. Scale 1 inch to ¼ mile or 1:15,840.

P.951 Precambrian Geology of the Winisk River Area, District of Kenora (Patricia Portion). Compilation by R.A. Riley, 1973, 1974. Scale 1 inch to 4 miles or 1:253,440.

P.962 Operation Ignace-Armstrong, Caribou Lake-Pashkokogan Lake Sheet, District of Thunder Bay, Geology by R.P. Sage, F.W. Breaks, G.M. Stott, G.M. McWilliams, and R.P. Bowen and other assistants, 1973. Scale, 1 inch to 2 miles, or 1:126,720.

P.963	Operation Ignace-Armstrong, Obonga Lake-Lac des Iles Sheet, District of Thunder Bay, Geology by R.P. Sage, F.W. Breaks, G.M. Stott, G.M. McWilliams, and D. Robertson, and other assistants, 1973. Scale 1 inch to 2 miles or 1:126,720.
P.964	Operation Ignace-Armstrong, Ignace-Graham Sheet, District of Thunder Bay, Rainy River, and Kenora, Geology by R.P. Sage, F.W. Breaks, G.M. Stott, G.M. McWilliams and S. Atkinson, and other assistants, 1973. Scale 1 inch to 2 miles or 1:126,740.
P.965	Operation Ignace-Armstrong, Mine Center-Entwine Lake Sheet, Districts of Kenora and Rainy River, Geology by R.P. Sage, F.W. Breaks, G.M. McWilliams, G.M. Stott, A. Ali and other assistants, 1973. Scale 1 inch to 2 miles or 1:126,720.
Map 2229	Index to Aeromagnetic Maps of Ontario, Revised 1974. Scale 1 inch to 30 miles, or 1:1,900,800.
Map 2280	Mapledoram-Gemmell, Thunder Bay District. Geology by V.G. Milne and assistants, 1968, 1969, 1970. Scale 1 inch to 1,000 feet or 1:12,000.
Map 2285	St. Ignace Island and Adjacent Islands, Thunder Bay District, Geology by J.F. Giguere and assistants, 1969. Scale 1 inch to 1 mile or 1:63,360.
Map 2287	Winisk Lake, Kenora District, Geology and geological compilation by P.C. Thurston, G.M. Siragusa, and R.P. Sage, with added information in the northeastern corner by R.A. Riley, 1971-1973, scale 1 inch to 4 miles or 1:253,440.
Map 2293	Dickison Lake, Thunder Bay District, Geology by M.W. Carter and assistants, 1970. Scale 1 inch to 1 mile or 1:63,360.
Map 2294	Dorothea, Sandra, and Irwin Townships, Thunder Bay District (42 E/12, 42 E/13, 52 H/9, 52 H/16). Geology by W.O. Mackasey and assistants, 1967. Scale 1 inch to ½ mile or 1:31,680.
Map 2310	Ontario Mineral Map, compilation by the Geological Branch, Ontario Division of Mines, Revised 1974. Scale 1 inch to 25 miles or 1:1,584,000.
OFR5103	Selective Retrieval from the Canadian Index to Geoscience Data on (1) Assessment Work (1972, 1973) Filed with the Ontario Division of Mines and (2) Reports Received under Ontario's Mineral Exploration Assistance Program (MEAP) by H.A. Groen.

OFR5104	Ontario Occurrences of Float, Placer Gold, Indicator Minerals for Kimberlite, etc., by S.A. Ferguson, 225p., 6 figures.
OFR5105	Elmhirst and Rickaby Townships, District of Thunder Bay, by W.O. Mackasey and H. Wallace, 115p., 18 figures, 8 tables, 21 photos. Accompanied by Maps P.801 and P.802, scale 1 inch to ¼ mile or 1:15,840.
OFR5114	Mineral Exploration Assistance Program (MEAP), Fiscal Years 1971-72, 1972-73, and 1973-74 by S.A. Ferguson, E. Bayer and S.C. Sun, 1974, 70p.
OFR5117	Aggregate Resources Search - North Shores Lakes Superior and Huron, Districts of Thunder Bay and Algoma, by Gartner Lee Associates Limited, 116p., 27 maps, scale 1 inch to 2 miles or 1:126,720, and one map, scale 1 inch to 16 miles or 1:1,013,760.
MP57	Annual Report of the Resident Geologist's Section, Geological Branch. Edited by C.R. Kustra, 192p., 22 figures, 17 tables.
MP58	A Regional Approach to the Wabigoon-Quetico Belts and its bearing on Exploration in Northwestern Ontario. By W.O. Mackasey, C.E. Blackburn and N.F. Trowell, 34p., 8 tables.
MP59	Summary of Field Work, 1974, by the Geological Branch, Edited by V.G. Milne, D.F. Hewitt and K.D. Card, 206p., plus various figures and key maps.

ODM-GSC MAPS ISSUED IN 1974:

High Resolution Aeromagnetic Maps	Geophysical Series (High Resolution Aeromagnetic) District of Thunder Bay, Ontario. Between Latitudes 49°30'00" and 50°00'00"N and Longitudes 86°30'00" and 80°07'30"W (parts of 42 E/10-15 and 52 H/16 and 19), 52 maps at scale 1:25,000 Nos. 20,067G to 20,118G inclusive. One map at scale 1:125,000 No. 30,002G, 1974.

RECENT PUBLICATIONS AND REFERENCES:

Anters, Ernest
1951: Glacial Clays in Steeprock Lake, Ontario, Canada; Bull. Geo. Soc. America Vol.62, No.10, p.1223-1262.

Books, K.G.
1972: Paleomagnetism of Some Lake Superior Keweenawan Rocks; United States Geol. Surv. Prof. Paper 760, 42p.

Brown, W.L., Bray, R.C.E., and Mine Staff
1960: The Geology of the Geco Mine; CIM Trans., Vol.LXIII, p.1-9.

Cameron, E.M. and Jonasson, I.R.
1972: Mercury in Precambrian Shales of the Canadian Shield; Geochim. et Cosmochim. Acta Vol.36, p.985-1005.

Chadburn, C.H.
1923: Paragenesis of the Ores of the Silver Islet Mines, Thunder Bay Region, Lake Superior; Econ. Geol. Vol.18, No.1, p.77-82.

Clay, Charles
1941: The Steep Rock Hematite Deposits; The Pre Cambrian Vol.14, No.5, p.2-5 and p.9.

Dennen, W.H., and Puckett, A.M.
1972: On the Chemistry and Colour of Amethyst; Canadian Mineral. Vol.11, p.448-456.

Dreimanis, A.
1956: Steep Rock Iron Ore Boulder Train; Proc. Geol. Assoc. of Canada, Vol.8, pt.1, p.27-70.

DuBois, P.M.
1962: Palaeomagnetism and Correlation of Keweenawan Rocks; Geol. Surv. Canada, Bull.71, 75p.

Eden, W.J.
1955: A Laboratory Study of Varved Clay From Steeprock Lake, Ontario; American J. Sci., Vol.253, p.659-674.

Ewert, W.D.
1970: Briarcliffe-Melchett Lake Iron Ore Zone; Unpubl. B. Sc. Thesis, University of Waterloo, Waterloo, Ontario, 41p.

Gebelein, C.D.
1974: Biologic Control of Stromatolite Microstructure: Implications for Precambrian Time Stratigraphy; American J. Sci., Vol.274, No.6, p.575-598.

Goldich, S.S., Hanson, G.N., Hallford, C.R., and Mudrey, M.G.

1972: Early Precambrian Rocks in the Saganaga Lake-Northern Light Lake Area, Minnesota-Ontario: Part I. Petrology and Structure; p.151-177 in Studies in Mineralogy and Precambrian Geology, edited by B.R. Doe and D.K. Smith, Geol. Soc. America, Memoir 135, 348p.

Goodwin, A.M.

1956(?): Facies Relationships in the Gunflint Iron Formation. (Unreferenced paper in Regional Geologist's files, Ontario Ministry of Natural Resources, Thunder Bay).

Green, J.C.

1972: Field Trip Guide Book for Precambrian North Shore Volcanic Group, Northeastern Minnesota; Minnesota Geol. Surv., 36p.

Gruner, J.W.

1941: Structural Geology of the Knife Lake Area of Northeastern Minnesota; Bull. Geol. Soc. America, Vol.52, No.10, p.1577-1642.

1956: Discussion, Geology and Iron Ores of Steep Rock Lake; by A.W. Joliffe, Econ. Geol., Vol.51, No.1, p.98-99.

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Table 13 Summary of Mining Operations in 1974

North Central Region

Name	Location	Product
Algoma Development Corp.	Pifher Twp.	Gold, copper
Caland Ore Company Limited	Atikokan	Iron
Hays Lake Mine Limited	Terrace Bay Area	Gold
The International Nickel Company of Canada, Limited (Shebandowan mine)	Shebandowan Lake	Copper, nickel platinum
Noranda Mines Limited (Geco mine)	Manitouwadge	Copper, zinc, silver, lead
Steep Rock Iron Mines Limited	Atikokan	Iron
Thunder Bay Amethyst Mining Company Limited	McTavish Twp.	Amethyst amethystine building stone
Willroy Mines Limited	Manitouwadge	Copper, zinc, lead, silver

Table 14 Summary of Assessment Work Received in 1972, 1973 and 1974

Thunder Bay Mining Division

Type of Work	1972 days	1973 days	1974 days
Manual Labour	1,471	2,017	1,788.6
Geophysical	52,757	24,320	26,061
Geological	4,776	7,450	4,300
Diamond Drilling	61,512	49,575	37,130.5
Power Equipment	3,322	4,591.4	4,933.9
Land Surveys	4,074	2,920	2,680
Geochemical	899	2,520	21
Core Submission	48	108	94
Assaying	159	39.9	2,234
Shaft Sinking	1,385	-	-
Bulldozer	-	767.3	1,292.9
Drill Pipe Dredging	-	-	23.3
Totals	130,393	94,308.6	80,559.2

Table 15 Assessment Work and Other Information Received in 1974

Thunder Bay Mining Division

Abbreviations

A - Airborne
DDH - Diamond Drill Holes: No. of Holes and Total Footage
GL - Geological Survey
GC - Geochemistry Survey
EM - Electromagnetic Survey
Mag. - Magnetometer Survey
IP - Induced Polarization Survey
MEAP - Mineral Exploration Assistance Program
RA - Resistivity Survey

Number on Fig. 4	Owner or Property Name	Township or Claim Map-Area (and number)	NTS	Date Work Performed	Type of Assessment Work Recorded
1	Abitibi Paper Company Ltd.	Goodfellow & Pallis Twps. (M 1711)	52B16	August 1972	4 DDH (1,250'); Airborne Geophy. (Questor); Geol. Geochem.
2a	Amax Exploration, Inc.	Altitude Lake; Martin Lake (M 1839) Lapierre & Irwin Twps.	42E12,13,14	September 1972	MEAP GB 21 & GB 30; Final Report: Geol., Geochem., Geophy; 6 DDH (2,181')
2b	Amax Exploration, Inc.	Whitebirch Lake Area	52B14	January 1972	Mag., VLF-EM; Report
2c	Amax Exploration, Inc.	Irwin Twp. (M 1760)	42E12	August 1972	Geological Report
2d	Amax Exploration, Inc.	Irwin Twp.	42E12	September 1973	Geological Report
3	Anderson, J.T.	Hagey Twp. (M1741)	52B9	December 1973 January 1974	3 DDH (1,587')
4	Ardel Explorations Ltd.	Molson Lake Area (M 33)	42C12	October 1973	3 DDH (789')
5a	Asarco Exploration Company of Canada Ltd.	Yesno Twp. (Twp 87)	42D13	September-November 1973	Geological Report
5b		Bedivere Lake Area (M 1647)	52B15	May-June 1974	EM., Mag. Report
6	Augmitto Explorations Ltd.	Pifher & Elmhirst Twps. (M1863) (M1705)	42E13	May-June 1973	IP, 3 DDH (1,302); MEAP GB-31
7	Barbara Lake Mines Ltd.	Barbara Lake Area (M2505)	42E5	October-November 1972	MEAP GB-37: Geological Report
8a	Belore Mines Ltd.	Moss Twp. (M 1826)	52B10	January 1972	Report; Prospectus; Maps EM., Mag., Geological Report
8b	Belore Mines Ltd.	Moss Twp. (M 1826)	52B10	December 1973	EM., Mag., Geological Report
9a	Canadian Nickel Company Ltd.	Wapitotem Lake (M 2252)	43D5	September 1973	1 DDH (164')
9b	Canadian Nickel Company Ltd.	Walters Twp.	42E12	July 1974	3 DDH (522')
9c	Canadian Nickel Company Ltd.	Springer Lake Area (M 1969)	43D6	June-July 1973	23 DDH (11,060')
9d	Canadian Nickel Company Ltd.	Gzowski-Kowkash Twps.	42L5,6	October 1973	1 DDH (153')
10a	Carling Copper Mine Ltd.	Elmhirst Twp. (M 1705)	42E13	July 1973	1 DDH (364')
10b	Carling Copper Mine Ltd.	Elmhirst Twp. (M 1705)	42E13	October-November 1972 June-July 1973	MEAP GB-38: 11 DDH(2,952') assays
11	Chemalloy Minerals Ltd.	Elmhirst & Pifher Twps. (M 1705) (M 1863)	42E13	September 1971	MEAP GB-5: Preliminary Geological Report
12	Chevron Standard Ltd.	Coldwell Twp. (Twp. 78) (M 1921)	42D16	June 1973	Bulk sample report
13	Copconda Mines Ltd.	Elmhirst Twp. (M 1705)	42E13	June-July 1973	Prospectus; 1 DDH (901')
14	Cornell, E.W.	Freeborn Twp. (M 2361)	52B13		2 DDH (227')
15	Croteau, M.	Metcalfe Lake Area (M 1408)	42L4	October-November 1973	Geological Report
16	Dempster, L.	Moss Twp. (M 1826)	52B10	October 1974	EM., 1 DDH (259')
17	Douglas, A.	Lahontan Twp. (Twp. 86) (M 1928)	42D14	October 1973	4 DDH (1,000')

Map No	Owner or Property Name	Township or Area	N.T.S.	Date Work Performed	Type of Assessment Work Recorded
18a	Falconbridge Nickel Mines Ltd.	Oldman Lake (M 2384)	52G3	September 1973	Geological & Geophysical Reports; 3 DDH (1,521')
18b	Falconbridge Nickel Mines Ltd.	Oldman Lake (M 2384)	52G3	February 1974	EM., Mag
18c	Falconbridge Nickel Mines Ltd.	Moss Twp. (M 1826)	52B10	December 1973	EM., Mag
18d	Falconbridge Nickel Mines Ltd.	Moss Twp. (M 1826)	52B10	May 1974	Geological Report
18e	Falconbridge Nickel Mines Ltd.	Haines Twp. (M1742)	52B9	January 1973	IP., Mag., EM
18f		Haines Twp. (M1742) & Kashabowie Lake Area (M2405)	52B9	Jan-Feb. 1974	3 DDH - 1,560'
18g		Boot Bay Area (M2448)	52B15	Feb.-Mar. 1974	4 DDH - 1,857'
18h		MacGregor Twp.(1813)	52A10	Oct. 1973	EM., 3 DDH - 1,452'
19	Getty Mines Northeast Ltd.	Shabuskwia Lake (M1638)	52P2	October 1973 June 1974	4 DDH-2,8[illegible]'
20	Giant Gripp Mines Inc.	Summit Lake (M 1802)	42E12	Aug.-Sept. 1973 Jan-Mar. 1973	9 DDH - 1,999'
21	Hanson Mines Ltd.	Vincent Twp. (M1914)	42E12	May-June 1973	5 DDH-401' - MEAP GB-34
22	Hollinger Mines Ltd.	Ashmore Twp. (M 1636)		1970, 1971	MEAP GB 33, Preliminary Report
23	Holms, H.M.	Meader Twp. (M1817) Sandra Twp. (1880)	42E13	July 1973	Trenching
24a	Hudson Bay Exploration & Development Company Ltd.	Nakina South	42E15	June 1972	E.M., 4 DDH - 541'
24b		Houck Twp. (M1756)	42E15	August 1972	7 DDH - 1,154'
24c		McQuesten Twp. (M1811)	42E15	November 1972	Geological; E.M., 4 DDH-1,121'
24d		Longlac-Pagwachuan Nakina South McQuesten Twp. (M1811)	42E15	May 1972-March 1973	MEAP GB-25-Final Report
24e		Bickle & Oakes Twps. (M 1653) (M2506)	42E15	Feb 1972-Aug. 1973	E.M. Mag., Geological; 16 DDH - 2,198'
24f		Onaman South(M1850)	42E13	July 1972	7 DDH - 4,058'
25	Huronian Mines Ltd.	Moss Twp. (M1826)	52B10	December 1972	Prospectus; Report on Geophysical Surveys
26	Imperial Oil Ltd.	Bell & Low Twps. (M1650) (M1799)	42F13	Sept. 1973	E.M., Mag.
27	Iso Mines Ltd.	Sourdough Rapids	43E13	Aug.1972;Feb.1973	Mag., Radem-VLF
28	Jelex Mines Ltd.	Lindsley Twp.(M1797)	42E11	March 1974	Report
29	Kasner, A.J.	O'Sullivan Lake (M1415)	42L6	July 1972	2 DDH-610'
30	Kuhner, E.	Lac des Iles (M1788)	52H4	July 1974	2 DDH-792'
31a	Lynx-Canada Explorations Ltd.	Moss Twp. (M1826)	52B10	July 1973	E.M., Mag., Stripping
31b		Georgia Lake Area (M 1642)	42E5	1972	MEAP-GB-18: Trenching; geological, geochemical, geophysical (I.P.) 8 DDH-3,837'
31c		Irwin Twp. (M1760)	42E12	Sept. 1973	MEAP GB-28: Trenching & stripping
31d		Vincent Lake Area	42E12	1972	MEAP GB-22: Final Report
32	Mattagami Lake Mines Ltd.	O'Sullivan Lake Area (M1415)	42L6	Jan.-April 1974	VLF-E.M.; Horizontal Loop E.M.; Mag.
33	McCabe, R.	Walsh Twp. (Twp.80) (M1928)	42D15	January 1974	2 DDH-360'
34	McLeod, D.	McComber Twp. (M1802)	42E12	Aug.-Nov. 1973	Manual Labor
35	McWilliams, P.K.	Paipoonge Twp. (M1854)	52A5/SE	Sept. 1973	1 DDH-200'

Map No	Owner or Property Name	Township or Area	N.T.S.	Date Work Performed	Type of Assessment Work Recorded
36	Meakin, W.H.	Brightsand Lake(M1065)	52G16	October 1973 March 1974	E.M., Mag.
37	Metalore Mining Corporation Ltd.	Elmhirst Twp. (M1705)	42E13	Sept.-Oct. 1973	MEAP GB-39:Resistivity;I.P.
38	Morehouse-Johnson	Walters Twp.(M1917)	42E12	July 1974	Mag
39a	Noranda Exploration Company Ltd.	Metcalfe Lake Area Oboshkegan Twp. (M1413)	42L4	January -February 1973	EM, Mag
39b		Gzowski-Kowkash Twps. (M1408)	42L4	February-July 1973	EM, Mag.
39c		Hutchinson Twp(M1823)	52B14	December 1973	Geological Report
		Onaman North (M1414)	42L4	February-March 1973	MEAP GB-17-Summary Report
		Metcalfe Lake Area (M1408)	42L4	February-March 1973	EM, Mag
40a	Noranda Mines Ltd. (Geco Division)	Gemmell Twp. (M2381,M2387)	42F4	December 1973-February 1974	EM, Mag
40b		Loken Lake Area (M2381) Manitouwadge Lake Area (M2387)	42F4	July 1973	Geological
41	Otto, H.	Klotz Lake (M2868)	42F12	October 1973 January 1974	Mechanical
42	Otto,H, and Otto,L.J.	Klotz Lake (M2868)	42F12		Assays; 5 DDH-918'
43a	Petrick, J.	Pifher Twp. (M1863)	42E13	May-June 1973	1 DDH-154'
43b		Summers Twp(M1905)	42E12	August 1974	2 DDH-262'
44	Raleigh Minerals Ltd.	Paipoonge Twp(1854)	52A5		Report & Prospectus
45a	Rickaby Mines Ltd.	Rickaby Twp.(M1873)	42E13	August 1972	MEAP GB-35-Report
45b		Rickaby Twp.(M1873)	42E13	May-June 1974	4 DDH-1,120'
46	Royex Minerals Ltd.	Victoria Island (M1088)	52A3	July 1973	Report on ground geophysics
47	Shawmin Explorations Ltd.	Martin Lake (1839)	42E13	March-April 1973	EM, Report
48	Sperle, K.	Dickison Lake (M1642)	42E5	May 1973	EM, Mag
49	St. Joseph Explorations Ltd.	Harmon Lake (M2803)	52G16	January-March 1973	EM, Mag
50	Teckora Mines Ltd.	Redpaint Lake (M2051)	52G3	February 1974	Geochemical
51	Tarnowesky, J.	Ware Twp. (M1919)	52A12	August 1972	2 DDH-162'
52a	Thunder Bay Amethyst Mining Company Ltd.	McTavish Twp.(M1812)	52A10	September 1973	3 DDH-302'; stripping
52b		McTavish Twp.(M1812)	52A10	June 1974	3 DDH-989'
53	Tombill Mines Ltd.	Vincent Twp. (M1914)	42E12	January-February 1974	MEAP GB-36; 3 DDH-1,097' VLF-EM, Geochemical
54	Wicheruk, M	Hutchinson Twp. (M1823)	52B14	May 1974	Geophysical Report

1974 REPORT
# of the
NORTHERN REGIONAL GEOLOGIST
and
TIMMINS RESIDENT GEOLOGIST

by

W.O. Karvinen and D.S. Hunt

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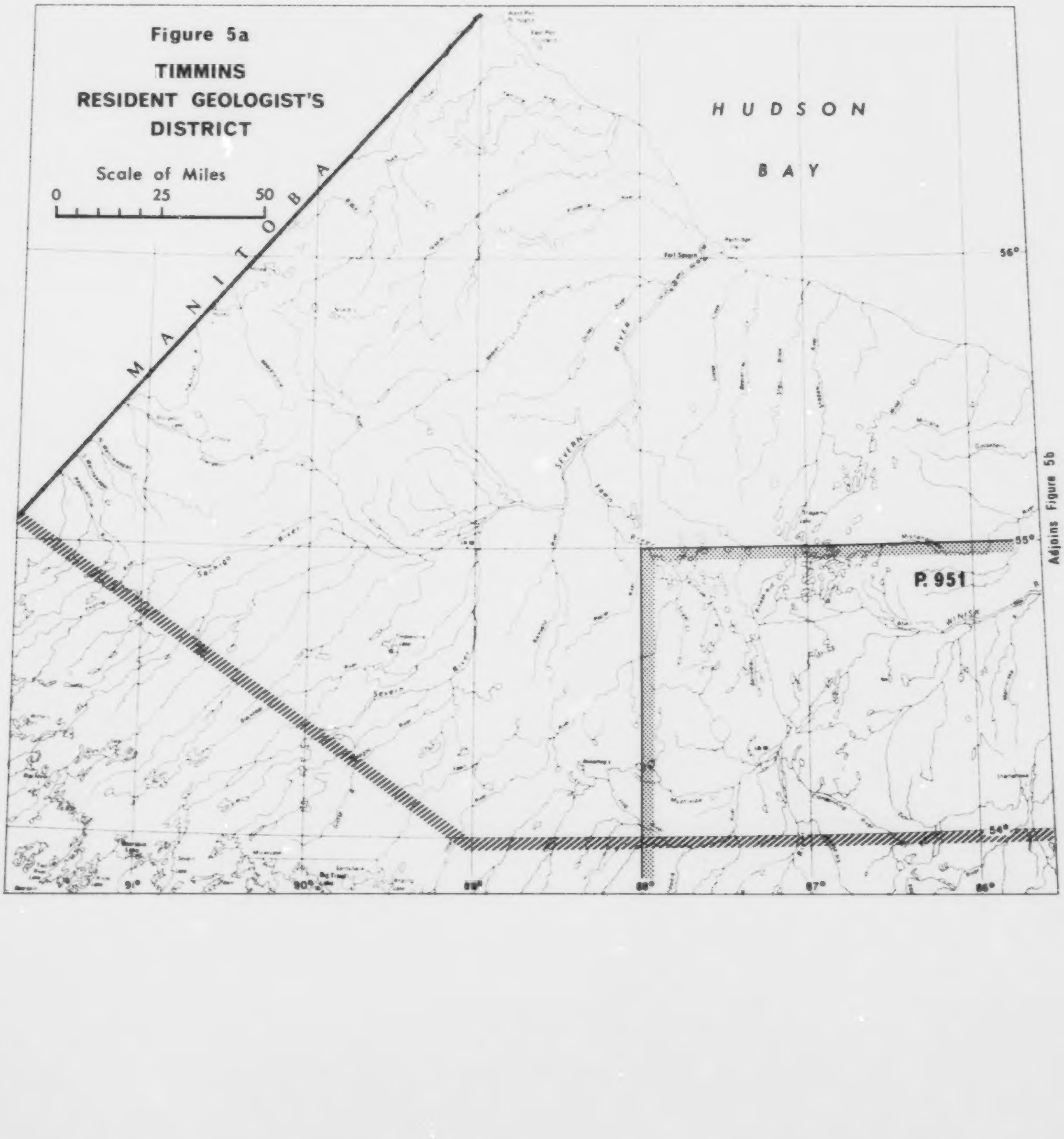


Figure 5a

TIMMINS RESIDENT GEOLOGIST'S DISTRICT

Scale of Miles
0
25
50
HUDSON BAY
MANITOBA
SEVERN RIVER
Severn River
P. 951
Adjoins Figure 5b
56°
55°
54°
91°
90°
89°
88°
87°
86°

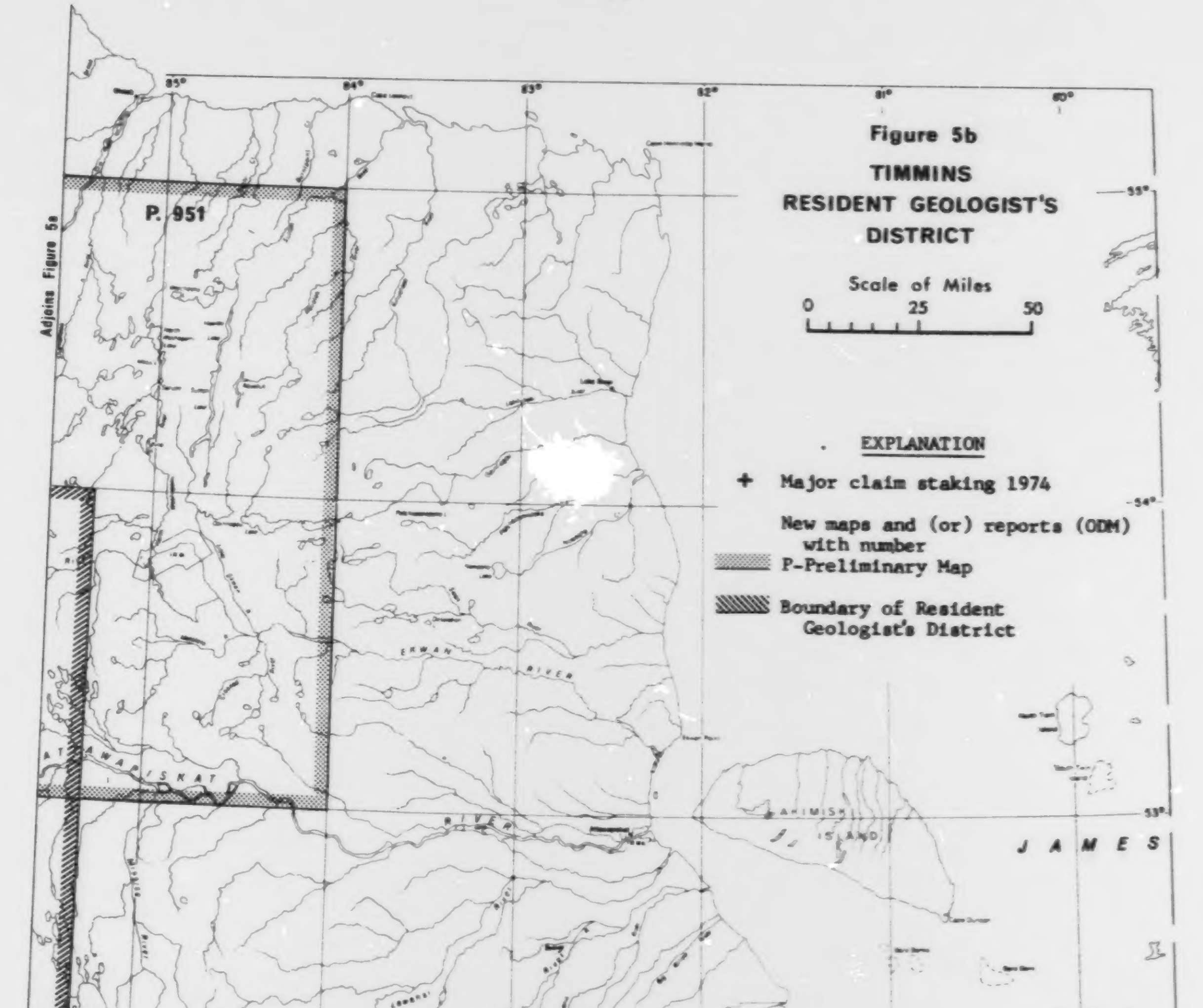


Figure 5b

TIMMINS RESIDENT GEOLOGIST'S DISTRICT

Scale of Miles

0 25 50

EXPLANATION

- + Major claim staking 1974
- New maps and (or) reports (ODM) with number
- ▨ P-Preliminary Map
- ▨ Boundary of Resident Geologist's District

85°
84°
83°
82°
81°
80°
55°
54°
53°
52°
51°
P. 951
Adjoins Figure 5a
ATTAWAPISKAT
RIVER
EKWAN RIVER
AKIMISKI ISLAND
JAMES
BAY
ALBANY
RIVER
MOOSE
RIVER
QUEBEC
C O C H R A N E
Adjoins Figures 5c and 5d

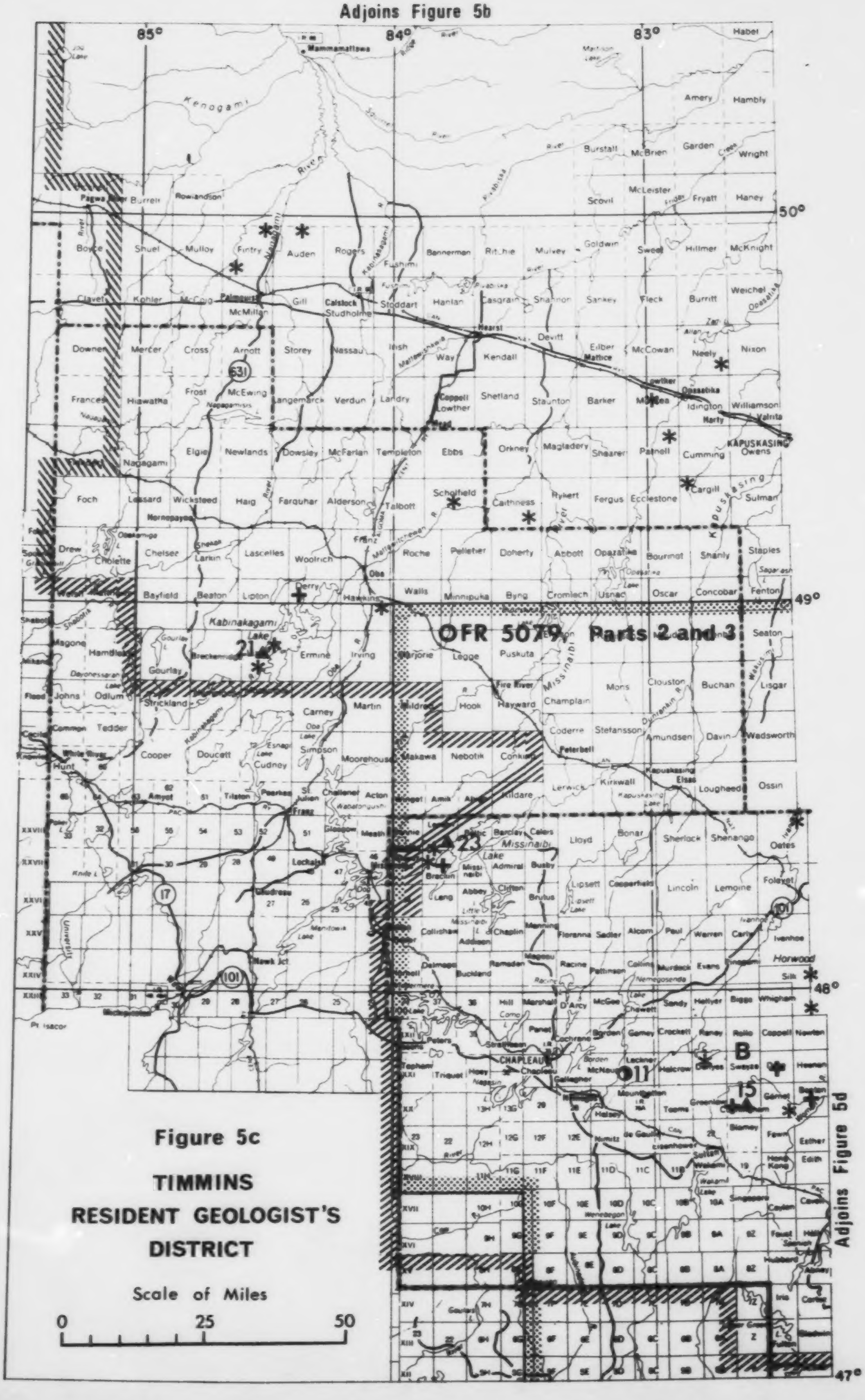

Adjoins Figure 5b
Adjoins Figure 5d
85°
84°
83°
50°
49°
48°
47°
OFR 5079, Parts 2 and 3
Hearst
KAPUSKASING
CHAPLEAU
Mammamattawa
Kenogami River
Pagwa River
Calstock
Hornepayne
Oba
White River
Missinaibi Lake
Kabinakagami Lake
Michipicoten
Wawa
Peterbell
Horwood
Smooth Rock Falls
21
23
11
15
B
17
101
631
0
25
50

Figure 5c

TIMMINS RESIDENT GEOLOGIST'S DISTRICT

Scale of Miles

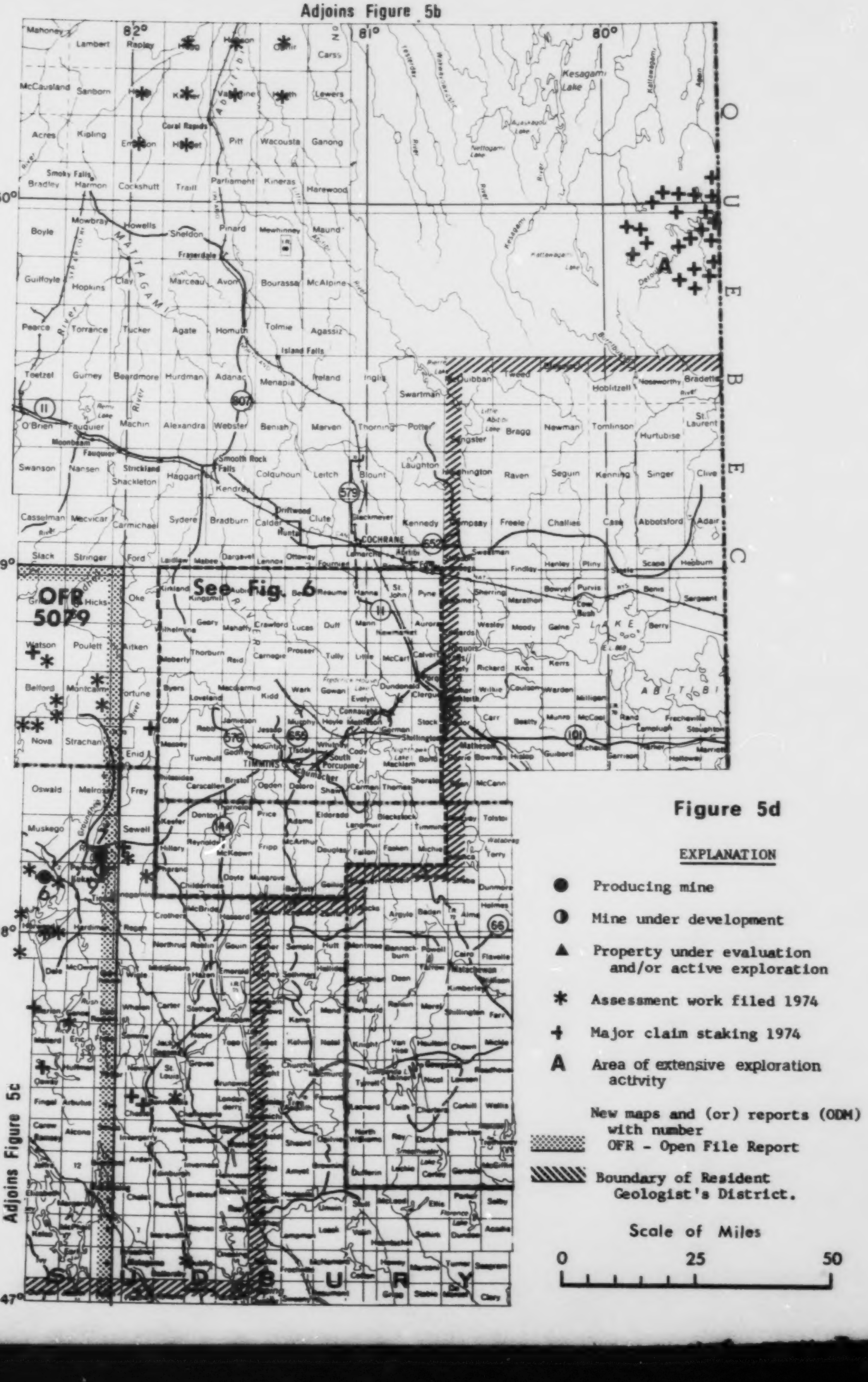

Adjoins Figure 5b
Adjoins Figure 5c
82°
81°
80°
50°
49°
48°
47°
QUEBEC
Kesagami Lake
MATTAGAMI
Smoky Falls
Coral Rapids
Fraserdale
Island Falls
Smooth Rock Falls
COCHRANE
TIMMINS
See Fig. 6
OFR 5079
LAKE ABITIBI
A
SUDBURY
11
807
579
652
101
576
655
144
66

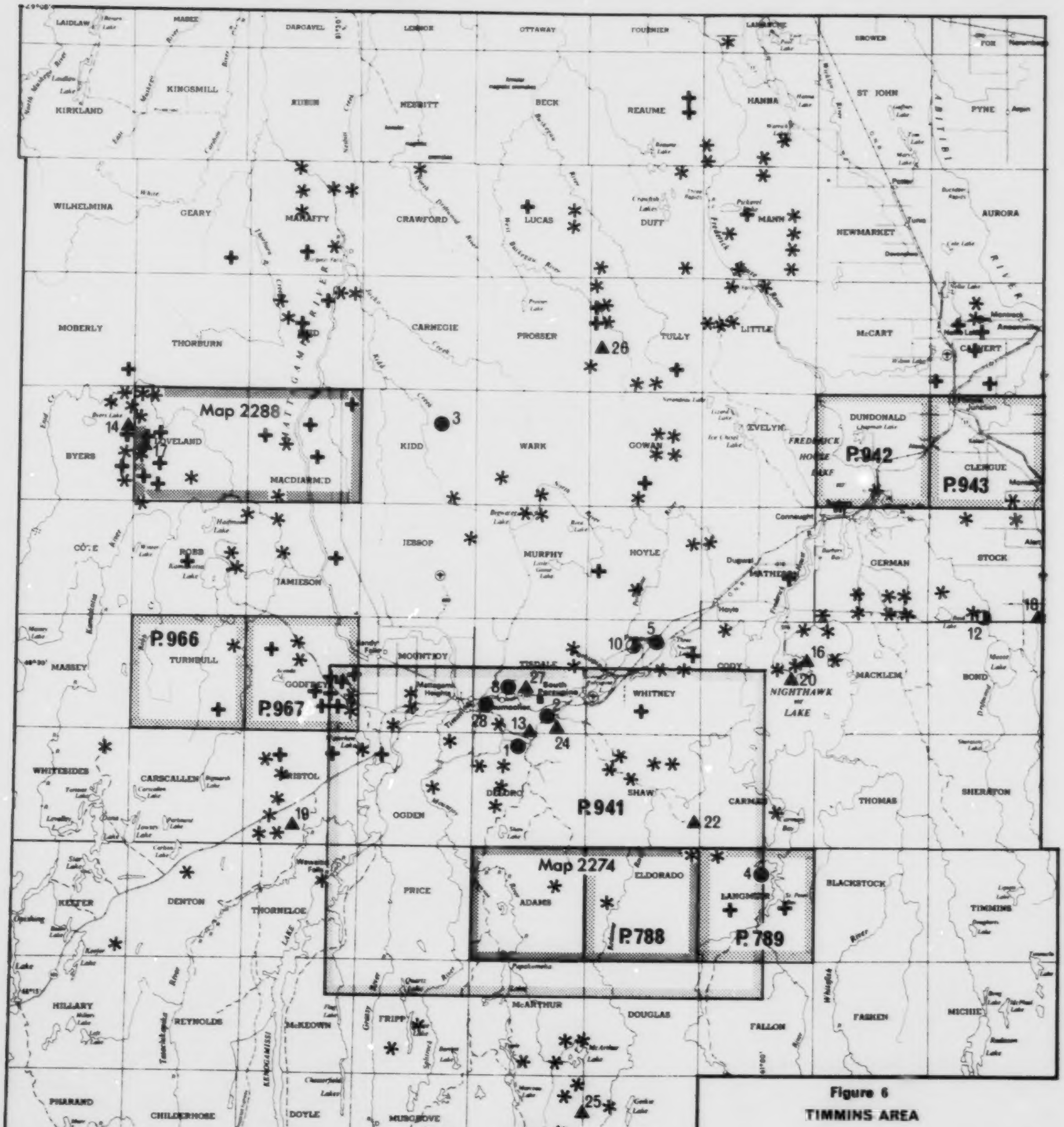
Figure 5d

EXPLANATION

- ● Producing mine
- ◑ Mine under development
- ▲ Property under evaluation and/or active exploration
- * Assessment work filed 1974
- \+ Major claim staking 1974
- A Area of extensive exploration activity
- New maps and (or) reports (ODM) with number
- ▒ OFR - Open File Report
- ▨ Boundary of Resident Geologist's District.

Scale of Miles

0 25 50



LAIDLAW
MABEE
DARGAVEL
LENNOX
OTTAWAY
FOURNIER
LAMARCHE
BROWER
FOX
KIRKLAND
KINGSMILL
REID
NESBITT
BECK
REAUME
HANNA
ST JOHN
PYNE
WILHELMINA
GEARY
MAHAFFY
CRAWFORD
LUCAS
DUFF
MANN
NEWMARKET
AURORA
ABITIBI RIVER
MOBERLY
THORBURN
MATTAGAMI RIVER
CARNEGIE
PROSSER
TULLY
LITTLE
McCART
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KIDD
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GOWAN
EVELYN
FREDERICK HOUSE LAKE
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P.943
COTE
ROBB
JAMIESON
JESSOP
MURPHY
HOYLE
GERMAN
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MASSEY
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TURNBULL
GODFREY
P.967
MOUNTJOY
TISDALE
WHITNEY
CODY
MACKLEM
BOND
NIGHTHAWK LAKE
WHITESIDES
CARSCALLEN
BRISTOL
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KEEFER
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THORNELOE
PRICE
Map 2274
ADAMS
ELDORADO
P.788
LANGMUIR
P.789
BLACKSTOCK
TIMMINS
HILLARY
REYNOLDS
McKEOWN
FRIPP
McARTHUR
DOUGLAS
FALLON
FASKEN
MICHIE
PHARAND
CHILDERHOSE
DOYLE
MUSGROVE
BARTLETT
GEIKIE
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Scale of Miles
0
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8

Figure 6
TIMMINS AREA

EXPLANATION

● Producing mine

◑ Mine under development

▲ Property under evaluation and/or active exploration

* Assessment work filed 1974

✚ Major claim staking 1974

▙ New maps and(or) reports (ODM) with number
OFR - Open File Report
2303 - Coloured Geological Map
P - Preliminary Map

INDEX TO FIGURES 5 and 6

Producing Mines 1973-1974

1.	Aunor mine (Pamour Porcupine Mines Ltd.)	Au,Ag
2.	Dome mine (Dome Mines Ltd.)	Au,Ag
3.	Kidd Creek mine (Ecstall Mining Ltd.)	Cu,Zn,Ag,Pb,Cd,Sn
4.	Langmuir mine (Noranda Mines Ltd., Canadian Nickel Co. Ltd.)	Ni
5.	Pamour Mine (Pamour Porcupine Mines Ltd.)	Au,Ag
6.	New Joburke mine (Noranda Explor. Co. Ltd.-New Joburke Explor. Ltd.)	Au
7.	Reeves mine (Canadian Johns-Manville Co. Ltd.)	asb
8.	Schumacher division (Pamour Porcupine Mines Ltd.)	Au,Ag,Cu

Mines Under Development

9.	Canadian Johns-Manville Co. Ltd., Penhorwood Twp.	Talc
10.	Hallnor mine (Pamour Porcupine Mines Ltd.)	Au,Ag
11.	Multi-Minerals Ltd. - Mertec Resource Dev., Nemegos mine, McNaught Twp.	Fe,apatite
12.	Quebec Sturgeon Mines Ltd., Stock Twp.	Au

Properties Under Evaluation and/or Active Exploration

13.	Associated Porcupine Mines Ltd. - Paymaster mine	Au,Ag
14.	Cominco Ltd. - Byers Twp. prospect	Cu,Ni
15.	Cons. Shunsby Mines Ltd., Grandora Explors. Ltd. option - Cunningham Twp. prospect	Cu,Zn
16.	Boycock property - Pamour Porcupine Mines Ltd. option - former Goldhawk Porcupine property	Au,Ag
17.	Hollinger Mines Ltd. - Loveland Twp. prospect	Cu,Ni
18.	Hollinger Mines Ltd. - Taylor Twp. prospect	Au
19.	Holmer Gold Mines Ltd. - Bristol Twp. prospect	Au
20.	Hydra Explors. Ltd., Pamour Porcupine Mines Ltd. option - former Porcupine Peninsular property	Au
21.	Keltic Mining Corp. Ltd., Lizar Twp. - Hiawatha mine	Au
22.	M & M Porcupine Gold Mines Ltd. - Shaw Twp. prospect	Au,Ag
23.	Nudulama Mines Ltd., The Coniagas Mines Ltd., Leeson Twp. - Nudulama mine	Au
24.	Sheridan Geophysics Ltd. - Preston mine	Au,Ag
25.	Texmont Mines Ltd. (Sheridan Geophysics Ltd. lease) - Bartlett & Geikie Twps.	Ni
26.	Texmont Mines Ltd., Intex Mining Co. Ltd. (Frankfield Explors. Ltd. option) - Tully Twp. prospect	Au
27.	Westfield Minerals Ltd. - Coniaurum mine (Pamour Porcupine Mines Ltd. option)	Au,Cu
28.	Hollinger Mines Ltd. - Hollinger mine (periodic production).	Au,Ag

1974 REPORT
# of the
NORTHERN REGIONAL GEOLOGIST
and
TIMMINS RESIDENT GEOLOGIST

by

W.O. Karvinen[1] and D.S. Hunt[2]

INTRODUCTION: The downward trend in exploration activity set during recent years continued in 1974. The level of gold exploration was about the same as in 1973, but base metal exploration activity was somewhat lower. No significant discoveries were made. The only major flurry of staking and exploration activity was in the Atkinson Lake-Detour Lake area (49°50'N, 79°35'W).

There are eight operating mines in the Timmins Resident Geologist's district: five gold, one copper-zinc-silver, one nickel and one asbestos. At present, three new mines, one gold, one talc and one iron-apatite, are at various stages of development and may be brought into production within the next couple of years.

REGIONAL GEOLOGIST'S ACTIVITIES: The position of Regional Geologist, Northern Region, was assumed by W.O. Karvinen on July 15, 1974, subsequent to the transfer of E.G. Bright to Toronto in April. Other staff members are: D.S. Hunt, Geological Assistant and K. Burke, Secretary.

In addition to normal office duties (i.e. providing a consultative service to the public and maintaining a reference library of assessment work reports, journals, rock suites, diamond drill core, etc.), staff members were involved in the following projects:

1. Delineating exploration problems and areas lacking pertinent detailed geological information.

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[1] Regional Geologist, Ontario Ministry of Natural Resources, 60 Wilson Ave., Timmins, P4N 3W2.

[2] Regional Geologist's Assistant.

2. Devising a Regional Geological Program which would be of direct benefit to mineral exploration and to land-use planning.
3. Preparing Data Series maps of Kidd and Jessop Townships.
4. Visiting active prospects and mines and collecting diamond drill core, rock specimens and geological information.
5. Providing geological information for Ministry land-use planning projects: Strategic Land-Use Planning, Northeastern Planning Region; Timmins Official Municipal Plan; various Provincial Park and road-corridor proposals.
6. Providing information for geological and mineral potential maps of northern Ontario.

Projects planned for 1975 include:

1. Detailed field mapping and data compilation of twelve townships in the Frederick House Lake-Iroquois Falls area by W.O. Karvinen.
2. An investigation of sand and gravel deposits in the Timmins area by D.S. Hunt.
3. A mineral potential study of the Hudson Bay Lowlands.

GEOLOGICAL BRANCH ACTIVITIES: During 1974, four Geological Branch mapping projects were carried out in the Northern Region. Of these, one was conducted partially in the Timmins Resident Geologist's district: geological mapping in the Watabeag River area (Nighthawk Lake to Matheson) by D.R. Pyke.

RESEARCH BY OTHER ORGANIZATIONS: Thesis projects conducted in the Timmins area in 1974 were:

(i) Stratigraphy and Sedimentology of Early Precambrian Sediments, Abitibi Belt. B.Sc. thesis by J. Lorsong, University of Toronto.
(ii) A Petrologic and Geochemical Study of Ultramafic Rocks, Southeast of Timmins. M.Sc. thesis by T. Muir, Queen's University.
(iii) A Study of Quartz-Carbonate Veins near the Destor-Porcupine Fault Zone. M.Sc. thesis by G. Carnavalli; Waterloo University.
(iv) Volcanic Stratigraphy, Kamiskotia Area. Ph.D. thesis by D. Fisher, University of Toronto.

OPERATING MINES:

Pamour Porcupine Mines Limited: Pamour Porcupine Mines Limited, controlled by Noranda Mines Limited, owns and operates as separate divisions, (i) the Aunor (number 1 on Figure 6) and Pamour (number 5 on Figure 6) gold mines, and (ii) the Schumacher (number 8 on Figure 6) copper-gold mine (former

McIntyre Porcupine mine). In addition, Pamour Porcupine Mines Limited operates the Langmuir nickel mine (number 4 on Figure 6), owned jointly by Noranda Mines Limited and Canadian Nickel Company Limited, and mills ore from the New Joburke gold mine (number 6 on Figure 5) in Keith Township, operated by Noranda Exploration Company Limited and owned jointly by various companies of the Noranda Group and New Joburke Explorations Limited.

Gold ore from the Pamour, Aunor and New Joburke mines is processed at the Pamour mill. Present milling capacity is 2,800 tons per day, but facilities are being expanded to 3,200 tons per day to meet increased production. During the first half of 1974, the mill treated 457,700 tons of ore from which 51,500 ounces of gold were recovered (The Northern Miner, Aug. 8, 1974, p.3).

Open-pit operations have been started on one of two near-surface ore zones in conglomerate, about ½ mile (0.8 km) east of Pamour's main shaft. The orebodies each contain about 300,000 tons grading 0.14 ounces gold per ton.

Daily production from the Schumacher division is about 2,300 tons of copper ore and 700 tons of gold ore. During the first half of 1974, the Schumacher mill treated 491,400 tons of gold and copper ore, producing 29,400 ounces gold, 32,500 ounces silver and concentrates containing 4,214,000 pounds copper.

Some development and exploration is being conducted by Schumacher division on Westfield Minerals Limited's Coniaurum copper-gold property (number 27 on Figure 6) which is under lease to Pamour Porcupine Mines Limited. Earlier work outlined "at least 1,100,000 tons" of ore in the Main Zone and a possible 2,000,000 tons in the new East Zone (The Northern Miner, April 18, 1974, p.25).

From the start of production in the fall of 1973 to June 30, 1974, the New Joburke gold mine produced 42,785 tons of ore grading 0.103 ounces gold per ton. Current production averages between 5,000 and 6,000 tons per month with an average grade of 0.15 ounces gold per ton. The ore is trucked a distance of about 65 miles (105 km) to the Pamour mill. Underground exploration and development have outlined higher-grade ore. Proven reserves are 281,500 tons grading 0.161 ounces gold per ton to a depth of 375 feet (114 m) (The Northern Miner, September 5, 1974, p.3).

The Langmuir nickel mine produces about 700 tons of nickel ore per day. The ore is shipped to Sudbury for processing. Reserves are estimated at about 1.2 million tons grading 1.87 percent nickel (Panorama 1973).

Dome Mines Limited: During 1973, the Dome mine (number 2 on Figure 6) milled 682,200 tons of ore from which 148,512 ounces of gold were recovered. At the end of 1973, reserves were estimated at 1,691,000 tons grading 0.255 ounces gold per ton (The Northern Miner, April 4, 1974,p.2). Because of higher gold prices, some lower grade material was included in the reserves. As a result 1973 reserves were 6 percent greater than those of 1972, while the average grade was 4.5 percent less. Recently panel mining methods have been adopted to mine large tonnages of low grade (0.18 ounces gold per ton) ore on the 25th level, about 3,300 feet (1000 m) below surface.

Ecstall Mining Limited, Kidd Creek Mine: During 1973, production from the Kidd Creek mine (number 3 on Figure 6) was 205,600 tons copper concentrates, 589,800 tons zinc concentrates, 107,100 tons zinc metal, 10,691,000 ounces silver, plus quantities of lead, cadmium and tin (The Northern Miner, November 28, 1974, p.96). At the end of 1973 reserves above the 2,800-foot (850 m) level stood at 95 million tons with average grade of 1.53 percent copper, 9.73 percent zinc, and 4.26 ounces silver per ton. Recently, erratic gold values were reported from a zone near bornite-bearing ore. Reserves below the 2,800-foot (850 m) level have not yet been published; however, exploratory drilling continues to turn up ore-grade material. As reported in The Globe and Mail, (Toronto) November 1, 1974, one diamond drill hole intersected 1,164 feet (355 m) grading 3.2 percent copper thus extending the depth of the orebody to at least 4,700 feet (1430 m) below surface.

Expansion of mine and processing facilities, to include a copper smelter and refinery, an additional zinc circuit, and a fertilizer plant, is still being planned pending favourable Federal and Provincial taxation policies. The headframe for the 5,200-foot (1585 m) shaft of the No. 2 mine at the Kidd Creek orebody was completed during October.

Canadian Johns-Manville Company Limited, Reeves Mine: For most of 1974, production was suspended at the Reeves asbestos mine (number 7 on Figure 5) while extensive development work was carried out, including a major expansion of the open-pit and overhauling of mill facilities. Production resumed in late autumn.

Hollinger Mines Limited, Hollinger Mine: During the latter half of 1974, Hollinger Mines Limited conducted surface mining of isolated pockets of gold ore on the Hollinger mine property (number 28 on Figure 6), Tisdale Township. Most of the ore zones are surface exposures of gold-bearing vein systems which were worked underground, but were previously covered on surface by roads, buildings, etc. About 20,000 tons of ore have been mined, part of which has been trucked to the Ross mill in Hislop Township, 50 miles (80 km) east of Timmins.

MINES UNDER DEVELOPMENT:

Quebec Sturgeon River Mines Limited: In late summer, Quebec Sturgeon River Mines Limited (number 12 on Figure 6) commenced a program of underground exploration and development on their newly-discovered gold deposit in Stock Township. Plans include the sinking of a three-compartment, vertical shaft to a depth of 500 feet (150 m) and the establishment of levels at 225- and 350-foot (69 and 107 m) depths. To date (December 30, 1974), the shaft has been sunk to bedrock through 45 feet (14 m) of overburden, shells of mine buildings have been erected and a road ½ mile (0.8 km) long from Highway 101 to the mine has been constructed.

Surface drilling has outlined a gently dipping, 40-foot (12 m) thick ore zone containing an estimated 700,000 tons averaging a cut grade of 0.14 ounces gold per ton. Gold occurs mainly in disseminated sulphides but some free gold is present in quartz veins. Host rocks are "bleached" intermediate to mafic metavolcanics. On the north, the ore zone is flanked by the steeply-dipping, Destor-Porcupine Fault zone.

Canadian Johns-Manville Company Limited: Development work is going ahead on a talc deposit (number 9 on Figure 5) located in Penhorwood Township, about 1 mile (1.6 km) south of the Reeves mine (number 7 on Figure 5). The ore will be concentrated at the mine site and refined at a talc finishing plant which is to be located in Timmins. Production is to begin by mid-1975.

Multi-Minerals Limited and Mertec Resource Development: A $38 million project is being planned to bring into production Multi-Minerals Limited's magnetite-apatite deposit in McNaught Township, about 10 miles (16 km) northeast of Nemegos (number 11 on Figure 5). Plans are to process the titaniferous magnetite to pig iron and to produce apatite concentrate. The main deposit (No. 6) is one of several similar deposits which occur within the Lackner Lake carbonatite-alkalic complex. It is estimated that the No. 6 deposit contains "about 4.2 million tons of recoverable ore containing about 69.6% titaniferous magnetite and about 21.9% apatite" (The Northern Miner, December 12, 1974, p.16).

EXPLORATION ACTIVITY: During the past year, major exploration activity was mainly confined within a 40-mile (64 km) radius of Timmins. A few companies conducted basic exploration programs for base metals in the Swayze metavolcanic-metasedimentary belt (Area B, Figure 5), while the Atkinson Lake-Detour Lake area (Area A, Figure 5) was the scene of increased interest and activity during the latter part of the year. Other areas receiving some attention were the Partridge River, Kabinakagami Lake and Missinaibi Lake areas.

Assessment and other work reports received during 1974 are summarized in Table 16 at the end of this report. See also Figures 5 and 6.

Gold Exploration: Gold exploration was limited mostly to areas of known deposits where re-evaluation and exploration by diamond drilling and geophysics were conducted on former producers and prospects. Only a few basic exploration programs were carried out.

Nudulama Mines Limited and The Coniagas Mines Limited conducted exploration and development work at the Nudulama gold prospect (number 23 on Figure 5) in Leeson Township, about 15 miles (24 km) northeast of Missinabie. Although the deposit was never brought into production, previous work has indicated probable reserves of 499,000 tons grading 0.146 ounces gold per ton to a depth of 650 feet (200 m) (The Northern Miner, April 11, 1974, p.24). Plans are to reopen the property and mill the ore at the nearby Rengold Mines Limited property (former Renabie gold mine) which is being brought back into production (see Giblin 1975).

Keltic Mining Corporation Limited dewatered the old workings of the former Hiawatha gold mine (number 21 on Figure 5) in Lizar Township, 60 miles (97 km) southwest of Hearst. Underground sampling and surface exploration were carried out during the summer.

Noranda Mines Limited and its subsidiary, Pamour Porcupine Mines Limited, continued active exploration for gold in the Timmins area. Pamour Porcupine Mines Limited conducted diamond drilling on the former Porcupine Peninsular Gold Mines Limited property (number 20 on Figure 6), optioned from Hydra Explorations Limited, and on the adjoining former Goldhawk Porcupine Mines Limited property (number 16 on Figure 6). Noranda Mines Limited explored an area along the Pipestone fault in northern Stock and southern Clergue Townships, including the former Clavos Porcupine Mines Limited property.

Hollinger Mines Limited continued to explore by diamond drilling their ground along the Destor-Porcupine Fault in German and Taylor Townships (number 18 on Figure 6). Quebec Sturgeon River Mines Limited is also conducting an extensive program of deep drilling, particularly in Taylor Township, east along strike of their deposit in Stock Township.

Drilling on the Holmer Gold Mines Limited property (number 19 on Figure 6) in Bristol Township continued until spring. In mid-January, 23 diamond drill holes had delineated an ore zone 850 feet (260 km) long (The Northern Miner, January 17, 1974, p.25) containing an estimated 750,000 tons grading 0.15 ounces gold per ton (Regional Geologist's files, Ontario Ministry of Natural Resources, Timmins). The property is near the westward extension of the Destor-Porcupine Fault (Bristol fault) and includes the former Orpit Mines Limited gold prospect. Previous drilling near the Orpit shaft had indicated about 300,000 tons averaging 0.16 ounces gold per ton between depths of 400 feet (122 m) and 800 feet (244 m). (The Financial Post Survey of Mines 1946, p.152.)

Frankfield Explorations Limited drilled three holes on Texmont Mines Limited's gold prospect in Tully Township (number 26 on Figure 6). Earlier drilling had indicated a 500-foot (150 m) long zone grading 0.22 ounces gold per ton across an average width of 10 feet (3 m) (The Northern Miner, August 29, 1974, p.24). One of the holes drilled by Frankfield Explorations Limited intersected two gold-bearing zones: 18.3 feet (5.8 m) of 0.14 ounces gold per ton and 19.5 feet (5.9 m) of 0.17 ounces gold per ton (The Northern Miner, October 31, 1974, p.23).

Other evaluations being undertaken in the area are:

- Paymaster mine by Associated Porcupine Mines Limited (number 13 on Figure 6).
- Preston mine by Sheridan Geophysics Limited (number 24 on Figure 6).
- Malga-Carshaw deposits in Shaw and Carman Townships by M & M Porcupine Gold Mines Limited (number 22 on Figure 6).

Base Metals Exploration: The most active base-metal exploration in the district, particularly during the latter half of 1974, was in the Atkinson Lake-Detour Lake area near the Ontario-Quebec border (area "A", Figure 5). The area is underlain by metasediments and metavolcanics and is part of the "greenstone belt" in which a major base-metal discovery was made in Quebec during the fall of 1974. About 900 claims have been staked, several geophysical surveys have been conducted and at least one company is carrying out a diamond drilling program. At present a half-dozen major companies are active in the area.

Hollinger Mines Limited conducted follow-up diamond drilling to further delineate the Ni-Cu mineralization intersected late last year in west-central Loveland Township (number 17 on Figure 6). The extent of the deposit was expanded with encouraging results and plans are to renew work in the New Year. Although the mineralization is not unlike that of the Loveland Township Ni-Cu float (Bright 1973, p.173), some doubt still exists as to whether or not the Hollinger Mines Limited deposit is the source of the float.

Other exploration programs carried out include:

(i) geophysical surveys, diamond drilling and overburden drilling in southern Tully Township by Questmont Mines Limited;
(ii) geophysical surveys, diamond drilling and overburden drilling by Cominco Limited in the Kamiskotia area;
(iii) geophysical surveys and diamond drilling by Newmont Mining Corporation of Canada Limited in Reid Township;
(iv) diamond drilling by Grandora Explorations Limited on the Consolidated Shunsby Mines Limited property in Cunningham Township (number 15 on Figure 5).

ODM MAPS AND REPORTS ISSUED BY THE GEOLOGICAL BRANCH IN 1974:

P.788	Ground Vertical Component Magnetics, Eldorado Township, District of Timiskaming (42 A/6E). Geophysics by R.S. Middleton, W. Moon and assistants, 1971. Geology by D.R. Pyke and assistants, 1967, 1969. Scale 1 inch to ¼ mile or 1:15,840.
P.789	Ground Vertical Component Magnetics, Langmuir Township, District of Timiskaming (42 A/6E, 42 A/7W). Geophysics by R.S. Middleton, W. Moon and assistants, 1971. Geology by D.R. Pyke and assistants, 1967, 1969. Scale 1 inch to ¼ mile or 1:15,840.
P.941	Timmins Area, Districts of Cochrane and Timiskaming (42 A/6). Geology and compilation by D.R. Pyke, 1973. Scale 1 inch to 1 mile or 1:63,360.
P.942	Ground Vertical Component Magnetics, Dundonald Township, District of Cochrane (42 A/10). Geophysical survey and compilation by J.A. McCance and assistants, 1972, 1973. Scale 1 inch to ¼ mile or 1:15,840.
P.943	Ground Vertical Component Magnetics, Clergue Township, District of Cochrane (42 A/10). Geophysical survey and compilation by J.A. McCance and assistants, 1972, 1973. Scale 1 inch to ¼ mile or 1:15,840.

P.951	Precambrian Geology of the Winisk River Area, District of Kenora (Patricia Portion) (42 E, 43 F, 43 L, 43 K). Compilation by R.A. Riley, 1973, 1974. Scale 1 inch to 4 miles or 1:253,440.
P.966	Turnbull Township, District of Cochrane (42 A/5E, 42 A/12E). Geology by R.S. Middleton and assistants, 1969. Scale 1 inch to ¼ mile or 1:15,840.
P.967	Godfrey Township, District of Cochrane (42 A/5E, 42 A/6W, 42 A/11W, 42 A/12E). Geology by R.S. Middleton and assistants, 1969. Scale 1 inch to ¼ mile or 1:15,840.
Map 2229	Index to Aeromagnetic Maps of Ontario, Revised 1974. Scale 1 inch to 30 miles or 1:1,900,800.
Map 2274	Adams and Eldorado Townships, Timiskaming District (42 A/6). Geology by D.R. Pyke and assistant, 1969. Scale 1 inch to ½ mile or 1:31,680.
Map 2288	Loveland and Macdiarmid Townships, Cochrane District (42 A/11, 42 A/12). Geology by R.S. Middleton and assistants, 1970. Scale 1 inch to ½ mile or 1:31,680.
Map 2310	Ontario Mineral Map, compilation by the Geological Branch, Ontario Division of Mines, Revised 1974. Scale 1 inch to 25 miles or 1:1,584,000.
OFR5079 Part 2	Operation Chapleau (Part Only), Geology of the Chapleau Area, Districts of Algoma, Sudbury and Cochrane (41 J, 41 O, 42 B) by P.C. Thurston, G.M. Siragusa and R.P. Sage; 248p., 17 figures, 23 tables, 31 photos (Xerox copies), 4 maps.
OFR5079 Part 3	Operation Chapleau (Part Only), Economic Geology of the Chapleau Area, Districts of Algoma, Sudbury and Cochrane (41 J, 41 O, 42 B) by P.C. Thurston, G.M. Siragusa and R.P. Sage; 422p., 15 figures, 13 tables, 21 photos (Xerox copies) and 4 maps.
OFR5102	Gravity Survey of Geological Structures in the Timmins and Matheson Area, Districts of Cochrane, Timiskaming and Sudbury, by R.S. Middleton, 108p., 17 figures, 1 table, 2 maps.
OFR5103	Selective Retrieval from the Canadian Index to Geoscience Data on (1) Assessment Work (1972, 1973) filed with the Ontario Division of Mines and (2) Reports Received under Ontario's Mineral Exploration Assistance Program (MEAP) by H.A. Groen.

OFR5104	Ontario Occurrences of Float, Placer Gold, Indicator Minerals for Kimberlite, etc. by S.A. Ferguson, 225p., 6 figures.
OFR5109	Heavy Mineral Indicators in Alluvial and Esker Gravel of the Moose River Basin, James Bay Lowlands, District of Cochrane by W.J. Wolfe, H.A. Lee, and W.D. Hicks; 130p., 8 tables, 9 figures, 9 photos (Xerox copies) and 4 maps.
OFR5111	Onakawana Lignite Area, District of Cochrane (42 I/12, 13, 14) by J.R. Trusler and others. Includes drill records, correspondence, documents, reports and maps.
OFR5112	Geology of the Peterlong Lake Area, Districts of Timiskaming and Sudbury (42 A/3) by D.R. Pyke, 1974; 91p., 7 figures, 7 tables, 8 photos (Xerox copies) and one map, scale 1 inch to 1 mile or 1:63,360.
OFR5114	Mineral Exploration Assistance Program (MEAP), Fiscal Years 1971-72, 1972-73, and 1973-74 by S.A. Ferguson, E. Bayer and S.C. Sun, 1974, 70p.
MP57	Annual Report of Resident Geologist's Section, Geological Branch, 1973, edited by C.R. Kustra; 192p., 22 figures, 17 tables.
MP59	Summary of Field Work, 1974, by the Geological Branch. Edited by V.G. Milne, D.F. Hewitt, and K.D. Card, 206p. plus various figures and key maps.
GPR2	Magnetic Survey of Loveland and Macdiarmid Townships, District of Cochrane (42 A/11W, 12E), by R.S. Middleton; 26p., 4 tables, 7 figures. Accompanied by Map 2288, scale 1 inch to ½ mile or 1:31,680.
1973 Review	Ontario Mineral Review 1973, 136p. with various tables, figures, and photos.

RECENT PUBLICATIONS AND REFERENCES:

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1973: Timmins District; p.157-180 *in* Annual Report of Resident Geologists' Section, Geological Branch, 1972, edited by E.G. Pye, Ontario Div. Mines, MP54, 180p.

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1974: Niobium (Columbium) and Tantalum in Canada; Geol. Surv. Canada, Economic Geol. Report No. 29.

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1974: Bouguer Anomaly Map of Canada; Gravity Map, Ser. No. 74-1, Scale: 1:5,000,000.

Giblin, P.E.
1975: 1974 Report of the Northeastern Regional Geologist and Sault Ste. Marie Resident Geologist; in Annual Report of the Regional and Resident Geologists, 1974, edited by E.G. Pye, Ontario Div. Mines, MP60, approx. 230p.

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1974: Timmins Magnetic Susceptibility Map; Geol. Surv. Canada, O.F. 229. Obtainable from: K.G. Campbell Corp. Ltd., City Centre, 880 Wellington St., Ottawa, K1R 6K7.

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1974: Project EGMA Seismic Survey - Timmins, Ontario to Val d'Or, Quebec; Geol. Surv. Canada, Paper 74-44, 33p.

The Management and Staff, Ecstall Mining Limited, Timmins, Ontario
1974: The Ecstall Story; CIM Bull., Vol.67, No.745, p.49-142.

Naldrett, A.J.
1974: Nickel Sulphide Deposits-Their Classification and Genesis, with Special Emphasis on Deposits of Volcanic Association; CIM Bull., Vol.66, No.739, p.45-63.

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1974: Unpublished report on Cut and Fill Panel Mining at Dome Mines Limited, South Porcupine, Ont.; Porcupine Branch, CIM, Local Papers Night, Apr. 18, 1974 (on file at Regional Geologist's Office, Ontario Ministry of Natural Resources, Timmins).

Sabina, A.P.
1974: Rocks and Minerals for the Collector: Cobalt-Belleterre-Timmins, Ontario and Quebec; Geol. Surv. Canada, Paper 73-13, 199p.

Skinner, R.G.
1973: Pleistocene Stratigraphy of the Hudson Bay Lowland; p.1-16 in Proceedings: Symposium on the Physical Environment of the Hudson Bay Lowland, March 30, 31, 1973, University of Guelph, Guelph, Ontario.

Table 16 Assessment Work and Other Information Received Dec. 1, 1973 to Nov. 30, 1974

Porcupine Mining Division

Symbols and Abbreviations

Ag: silver
asb: asbestos
Au: gold
Co: cobalt
cp: chalcopyrite
cr: chromite
Cu: copper
cv: calcite vein
gn: galena
hem: hematite
IF: iron formation
mag: magnetite
magn: magnesite
mo: molybdenite
Ni: nickel
Pb: lead
po: pyrrhotite
py: pyrite
qcv: quartz-calcite vein
qv: quartz vein
sp: sphalerite
Zn: zinc

AEM: airborne electromagnetic survey
AMag: airborne magnetometer survey
CEM: ground electromagnetic survey
DDH: diamond drill hole
ELF: extra low frequency ground electromagnetic survey
EM: ground electromagnetic survey
Geochem: geochemical survey
Geol: geological survey
Grav: gravity survey
HEM: horizontal loop ground electromagnetic survey
IP: induced polarization survey
Mag: ground magnetometer survey
OVDH: overburden drill hole - dual tube system
spec: specimen
VEM: vertical loop ground electromagnetic survey
VLF: very low frequency ground electromagnetic survey

Note: qcv-gn, cv-, etc. indicates the association of a mineral with vein material.

Table footnotes:
* Not submitted for assessment work credits.
** Received from Kirkland Lake Resident Geologist's Office.

Location	Ownership	Type of Work	Commodity Found	Year	Timmins File No.	Toronto File No.	NTS
Adams Tp.	Rozak, N., P.O.Box 715, Timmins	CEM, Mag.		1972,1973	T-216	2.1310	42 A/6 SE
Auden and Fintry Tps.	North D'Arcy Explors. L.	Prospectus*		1973	T-385		42 F/16 NW 42 F/15 NE
Bartlett Tp.	Cons. Summit Mines Ltd.	Prospectus*		1973	T-1091		42 A/3 NE
Bartlett Tp.	Ecstall Mining Ltd.	Soil sampling, Geol. Map		1973	T-1609	2.1370	42 A/3 NE
Bartlett and Geikie Tps.	Granges Exploration (Can.)AB	AEM		1973	T-1643	2.1514	42 A/3
Battersby and Dublin Tps.	Jerome Explorations Ltd.	Mag., VLF		1972	T-2074	2.1034	41 P/4 SW
Belford, Nova and Watson Tps.	Phelps Dodge Corp. of Can.Ltd.	6 DDH-2639'	mag, po,py,cp,sp	1974	T-1632		42 B/9 W
Benneweiss Tp.	Cavalier Energy Inc.	Prospectus*		1974	T-2006		41 P/2 SW
Brackin and Leeson Tps.	Nudulama Mines Ltd.	Prospectus*		1974			42 B/5 SW 42 B/5 NW
Bristol Tp.	R. Allerston, 322 Elm St.N., Timmins, Ontario	Stripping, trenching		1973	T-1610		42 A/5 NE
Bristol Tp.	Dome Exploration (Can.)Ltd.	EM, Mag.		1973	T-1615	2.1408	42 A/5 NE
Bristol Tp.	Holmer Gold Mines Ltd.	Mag., VLF		1973	T-842	2.1329	42 A/5 NE
Bristol Tp.	McIntosh, G., 137 Balsam St.S., Timmins, Ont.	Stripping, trenching		1973	T-1612		42 A/5 NE
Bristol Tp.	O'Neill Prop.**	Geol.		1941	T-770		42 A/5 NE
Bristol Tp.	Thomas, H., 53 Main Ave., Timmins, Ont.	Stripping, trenching.		1974	T-1647		42 A/5 NE
Byers and Loveland Tps.	Amax Exploration, Inc.	3 DDH- 1598'	py, mag,cp, po	1974	T-1575		42 A/12 NE
Byers Tp.	Cominco Limited	6 DDH- 1970' HEM		1972,1973	T-16	2.1468	42 A/12 NE
Byers Tp.	Noranda Exploration Co.Ltd.	VEM, Mag.		1973	T-1601	2.1331	42 A/12 NE
Byers and Loveland Tps.	Noranda Exploration Co. Ltd.	VEM, Mag.		1973	T-1602	2.1331	42 A/12 NE
Byers Tp.	Noranda Exploration Co.Ltd.	VEM, Mag.		1973	T-1604	2.1331	42 A/12 NW
Caithness Tp.	Vukmirovich, S., 970 Monaca Rd., Monaca, Penn., USA	1 DDH - 130'	py	1974	T-2209		42 G/3 NW

Location	Ownership	Type of Work	Commodity Found	Year	Timmins File No.	Toronto File No.	NTS
Calvert Tp.	Montfort,M.,1274 Victoria Rd.,Iroquois Falls "M",Ont.	1 DDH - 87' Stripping, trenching		1973,1974	T-255		42 A/15 SW
Cargill,McCrae & Parnell Tps.	Barkhouse,H.,10 Maple Dr., Kapuskasing, Ont.	Correspondence*		1972	T-773		42 G/7
Carman Tp.	Canadian Nickel Co. Ltd.	1 DDH -1193'	py,talc,qv-gn	1974	T-1009		42 A/7 NW
Clergue Tp.	Carlson,H.D.,110 Martin St., P.O.Box 183,Porcupine,Ont.	Mag.		1973,1974	T-1644	2.1515	42 A/10 NE
Cody Tp.	Hollinger Mines Ltd.	1 DDH - 764'	cp,py,talc	1974	T-1617		42 A/10 SW
Cody Tp.	Pamour Porcupine Mines Ltd.	1 DDH - 503'		1973	T-1579		42 A/11 SE
Cody Tp.	Pamour Porcupine Mines Ltd.	4 DDH - 1979'	Au	1973,1974	T-1573		42 A/10 SW
Coppell,Neenan & Newton Tps.	U.S. Smelting & Refining Co.	12 DDH - 4101'*	Zn,Ag,py,cp,po	1970,1971	T-2226		410/16 SW
Crawford Tp.	McIntyre Porcupine Mines Ltd.	1 DDH - 351'	cp,sp,Ag	1973	T-1567		42 A/14 SW
Deloro Tp.	Boudreau,P., 62 Cody St.W., Timmins, Ontario.	Trenching		1973	T-1638		42 A/6 NW
Deloro Twp.	Carlson,H.D.,110 Martin St., P.O.Box 183,Porcupine,Ont.	Mag.		1973	T-1563	2.1406	42 A/6 NW
Deloro Tp.	Pamour Porcupine Mines Ltd.	Geol.	Au	1973,1974	T-1623	2.1450	42 A/6 NW
Deloro Tp.	Weir,L.,P.O.Box 715,Timmins, Ontario	Stripping, trenching		1973	T-1576		42 A/6 NW
Denton Tp.	Meridian Mining & Exploration Co. Ltd.	4 DDH - 415'	py	1974	T-1569		42 A/5 SE
Denyes Tp.	Falconbridge Nickel Mines Ltd.	Geol.	Au	1973	T-2068	2.1437	41 0/15
Douglas and McArthur Tps.	Sargent,P.,424 Patricia Blvd., Timmins, Ont.	Trenching		1974	T-1635		42 A/3 NE
Doyle Tp.	Korri, I.,Box 130,Porcupine, Ontario.	Stripping, blasting		1973,1974	T-1636		42 A/4 NE
Dublin and Battersby Tps.	Jerome Explorations Ltd.	Mag., VLF		1972	T-2074	2.1034	41 P/4 SW
Duff Tp.	Duncan R. Derry Ltd.	Mag., Grav.,Turam		1973	T-1585	2.1355	42 A/14 SE
Duff and Tully Tps.	Duncan R. Derry Ltd.	Grav.,Turam,Mag.		1973	T-1586	2.1357 2.1295	42 A/14 SE
Duff Tp.	Randa,T.,P.O.Box 102,Cochrane	1 DDH - 347'	sp,cp,py	1973	T-1546		42 A/14 SE
Dundonald Tp.	Hollinger Mines Ltd.	3 DDH - 1285'		1974	T-720		42 A/10 NW
Dyer,Emerson, Hamlet,Heath, Hecla,Hobson, Hogg,Kilmer, Ophir,Pitt & Valentine Tps. James Bay Area	Aquitaine Co. of Can.Ltd.	Grav.,resistivity* (electrical sounding) audio magneto-tellurics, DDH velocity logging & electrical logging, AMag.		1973	T-1581		42 I
Eldorado Tp.	Canadian Nickel Co. Ltd.	1 DDH - 108'		1973	T-473		42 A/6 SE
Eldorado Tp.	McAllister,C.,P.O. Box 262, Schumacher, Ontario.	Mag.		1973	T-1578	2.1276	42 A/6 SE
Emerson,Dyer, Hamlet,Heath, Hecla,Hobson, Hogg,Kilmer, Ophir,Pitt & Valentine Tps. James Bay Area	Aquitaine Co. of Can.Ltd.	Seismic, grav.,* resistivity (electrical sounding) audio magneto-tellurics, DDH velocity & electrical logging, AMag.		1973	T-1581		42 I
Eric and Genoa Tps.	Marquis Explorations Ltd.	1 DDH - 573' Petrographic analysis		1971	T-2086	2.1405	410/9 NE
Fintry Tp.	Cedam Limited	AMag.		1973	T-360	2.1409	42 F/15 NE
Fintry and Auden Tps.	North D'Arcy Explorations Ltd.	Prospectus*		1973	T-385		42 F/15 NE 42 F/16 NW
Fripp Tp.	Cons.Tache M. & Invests.Ltd.	IP		1973	T-1592	2.1273	42 A/3 NW
Fripp Tp.	Hollinger Mines Ltd.	2 DDH - 596'	Cu	1974	T-702		42 A/3 NW
Garnet Tp.	Canadian Nickel Co. Ltd.	2 DDH - 799'		1968	T-2079		410/9 NE
Geikie Tp.	Falconbridge Nickel Mines Ltd.	1 DDH - 719'	py	1974	T-79		42 A/3 NE
Geikie and Bartlett Tps.	Granges Exploration (Can.)AB	AEM		1973	T-1643	2.1514	42 A/3
Genoa and Eric Tps.	Marquis Explorations Ltd.	Petrographic analysis		1971	T-2086	2.1405	410/9 NE

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German and Macklem Tps.	Canadian Nickel Co. Ltd.	Basal till sampling,Pionjar Percussion Hammer: 53 holes -4721'	Ni,Cu	1973	T-1494	2.1335	42 A/10 SW
German and Stock Tps.	Hollinger Mines Ltd.	Mag., 4 DDH - 5041'	sp,py,cp,mo	1973,1974	T-1627	2.1462	42 A/10 SW
Godfrey Tp.	Ecstall Mining Ltd.	Mag., HEM		1973,1974	T-1628	2.1449	42 A/6 NW
Godfrey Tp.	Hollinger Mines Ltd.	Mag., VLF		1969	T-689	2.1579	42 A/5,6
Godfrey Tp.	Hollinger Mines Ltd.	VLF, Mag.		1969,1970 1973	T-1460	2.1352 2.1398	42 A/5,6
Gowan Tp.	Allerston,R.,322 Elm St.N. Timmins, Ontario.	8 OVDH - 1285'	Cu,Pb,Zn,Ni, Ag, Co, Au	1973	T-1619		42 A/11 NE
Gowan Tp.	Allerston,R.,322 Elm St.N., Timmins, Ontario.	Mag., VEM		1974	T-1625	2.1403	42 A/11 NE
Hamlet,Heath, Dyer,Emerson, Hecla,Hobson, Hogg,Kilmer, Ophir,Pitt & Valentine Tps., James Bay Area	Aquitaine Co. of Can.Ltd.	Seismic,grav.*, resistivity (electrical sounding), audio magneto-tellurics, DDH velocity & electrical logging, AMag		1972,1973	T-1581		42 I/3-6
Hanna Tp.	Duncan R. Derry Ltd.	1-DDH - 702', Mag.,Turam	qcv-po-py-cp-Ag-Au	1973	T-1577	2.1345	42 A/14 NE
Hanna Tp.	Duncan R. Derry Ltd.	Mag.,Grav.,Turam		1973	T-1598	2.1345	42 A/15 NW
Hanna and Mann Tps.	Noranda Exploration Co.Ltd.	VEM, Mag.		1973	T-1605	2.1331	42 A/15 NW
Hawkins Tp.	Magi Gold Mines Ltd.	Mag.		1974	T-2223	2.1455	42 C/16
Heath,Hecla, Hobson,Hogg, Dyer, Emerson, Hamlet,Kilmer, Ophir,Pitt and Valentine Tps., James Bay Area	Aquitaine Co. of Can.Ltd.	Seismic, grav.*, resistivity (electrical sounding), audio magneto-tellurics, DDH velocity and electrical logging, AMag.		1972,1973	T-1581		42 I/3-6
Heenan,Coppell & Newton Tps.	U.S.Smelting & Refining Co.	12 DDH-4101'*	Zn,Ag,py,cp,po	1970,1971	T-2263		410/16 SW
Horwood and Silk Tps.	Leslie,H.T.,Rm.706,67 Yonge St., Toronto, Ont.	5 DDH - 2496'	Au, cp	1973,1974	T-2124		
Horwood Tp.	Noranda Exploration Co.Ltd.; Bruneau,C.,136 Pine St.N., Timmins, Ontario.	VEM, Mag.		1973,1974	T-2125	2.1552 2.1553 2.1561	42 B/1 SW
Hoyle Tp.	Allerston,R.,322 Elm St.N., Timmins, Ontario.	1 DDH - 560 ft. Mag., VEM	py,cp,po	1974	T-643	2.1516	42 A/11 SE
Hoyle and Matheson Tps.	Ecstall Mining Limited	HEM, Mag., Land Survey		1973,1974	T-1584	2.1346	42 A/11 SE
James Bay Area, Dyer,Emerson, Hamlet, Heath, Hecla,Hobson, Hogg,Kilmer, Ophir,Pitt & Valentine Tps.	Aquitaine Co. of Can.Ltd.	Seismic,grav.*, resistivity (electrical sounding), audio magneto-tellurics, DDH velocity & electrical logging, AMag.		1972,1973	T-1581		42 I/3-6
Jamieson and Macdiarmid Tps.	Cominco Ltd.	31 OVDH -3270'	Pb,Au,Cu,Zn,Ni	1973	T-1621		42 A/12 E
Jamieson Tp.	Duncan R. Derry Ltd.	Mag., Turam		1973	T-1597	2.1345	42 A/12 SE
Jamieson and Robb Tps.	Duncan R. Derry Ltd.	Mag., Turam		1973	T-1607	2.1340	42 A/12 SE
Jessop Tp.	Hollinger Mines Ltd.	1 DDH - 720'	cp,sp,qcv-gn	1974	T-316		42 A/11 SW
Keefer Tp.	Galata,F.,12 Legume Rd., Weston, Ont.	Trenching, stripping		1973,1974	T-1556		42 A/5 SE
Keith Tp.	Dome Exploration (Can.) Ltd.	18 DDH - 6055'	py,Cu,Ni,Zn,asb, IF, po, Ag	1973	T-249		42 B/1 NW
Keith Tp.	Hanna Mining Co., The	Mag., Geol.		1973	T-1599	2.1379	42 B/1 NW
Keith Tp.	New Joburke Explorations Ltd.	Prospectus*		1973	T-70		42 B/1 NW
Keith Tp.	Noranda Exploration Co.Ltd.	Geol.,geochem., soil sampling		1971	T-87		42 B/1 NW
Kenogaming Tp.	International Norvalie Mines Ltd.	Prospectus*		1974	T-429		42 A/4 NW

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Kidd Tp.	Ecstall Mining Limited	Mag., HEM		1973,1974	T-1640	2.1478	42 A/11 NW
Kilmer, Dyer, Emerson, Hamlet, Heath, Hecla, Hobson, Hogg, Ophir, Pitt & Valentine Tps., James Bay Area	Aquitaine Co. of Can. Ltd.	Seismic, grav.*, resistivity (electrical sounding), audio magneto-tellurics, DDH velocity & electrical logging, AMag.		1972,1973	T-1581		42 I/3-6
Lamarche Tp.	Noranda Exploration Co.Ltd.	VEM, Mag.		1973	T-1595	2.1377	42 A/14 NE
Langmuir Tp.	Dowe, T.K., 441 Spruce St.N., Timmins, Ont.	1 DDH - 146'	po,cp,mag.,Au	1973	T-1639		42 A/6 SE
Leeson and Brackin Tps.	Nudulama Mines Ltd.	Prospectus*		1974			42 B/5 NW 42 B/5 SW
Little Tp.	Amax Exploration, Inc.	1 DDH- 473'	py	1973	T-163		42 A/15 SW
Little Tp.	Duncan R. Derry Ltd.	Mag., Turam		1973	T-1585	2.1356	42 A/14 SE
Little Tp.	Duncan R. Derry Ltd.	Mag., Turam		1973	T-1622	2.1354	42 A/14 SE
Little Tp.	Noranda Exploration Co.Ltd.	VEM, Mag.		1973	T-1594	2.1377	42 A/14 SE
Lizar Tp.	Primrock Mining & Expln. Ltd.; Keltic Mining Corpn.Ltd.	Mine workings rehabilitation, equipment rental		1974	T-2239		42 C/15
Loveland & Byers Tps.	Amax Exploration, Inc.	3 DDH - 1598'	py, mag, cp, po	1974	T-1575		42 A/12 NE
Loveland Tp.	Falconbridge Nickel Mines Ltd.	Mag., VEM		1973,1974	T-1583	2.1280 2.1428	42 A/12 NE
Loveland Tp.	Hollinger Mines Ltd.	15 DDH -11,536'	Cu,Ni,po,sp,mag., py	1974	T-1591		42 A/12 N
Loveland Tp.	Meunier, D., P.O.Box 1624, South Porcupine, Ont; Ristimaki, A., Box 1192, South Porcupine, Ont.	Geol.		1972-1973	T-1596	2.1336	42 A/12 NE
Loveland Tp.	Noranda Exploration Co.Ltd.	Geol., geochem, soil sampling		1973	T-1580	2.1305	42 A/12 NE
Loveland & Byers Tps.	Noranda Exploration Co.Ltd.	VEM, Mag.		1973	T-1602	2.1331	42 A/12 NE
Loveland & Robb Tps.	Noranda Exploration Co.Ltd.	VEM, Mag.		1973	T-1603	2.1331	42 A/12 NE
Lucas Tp.	Duncan R. Derry Ltd.	Mag., Turam		1973	T-1606	2.1378	42 A/14 SE
Macdiarmid Tp.	Canadian Johns-Manville Co. Ltd.	6 DDH - 3996' Land Survey	po, cp, py, asb, hem, mag, cr, native Cu, Ni	1973,1974	T-1539		42 A/12 NE
Macdiarmid & Jamieson Tps.	Cominco Ltd.	31 OVDH -3270'	Pb, Au, Cu, Zn, Ni	1973	T-1621		42 A/12E
Macklem & German Tps.	Canadian Nickel Co. Ltd.	Basal till sampling, Pionjar Percussion Hammer: 53 holes - 4721'	Ni, Cu	1973	T-1494	2.1335	42 A/10 SW
Macklem Tp.	Pamour Porcupine Mines Ltd.	1 DDH - 611'	Au	1973	T-1588		42 A/10 SW
Mahaffy Tp.	Asarco Exploration Co. of Canada Ltd.	ELF 1 DDH - 1054'	cp	1973,1974	T-1634	2.1471	42 A/13 SE
Mahaffy Tp.	Noranda Exploration Co.Ltd.	1 DDH - 440'*		1969	T-1453		42 A/13 SE
Mahaffy Tp.	Wright, R.J., P.O.Box 49, Suite 4900, Toronto Dominion Centre, Toronto, Ont.; McIntosh, G., 417 Queen St., South Porcupine, Ont.; Gonzales, M., 156 Columbus Ave., Timmins	1 DDH - 453', AEM, AMag.		1973,1974	T-1590	2.1360	42 A/13,14
Mann Tp.	Amax Exploration, Inc.	1 DDH - 534'	py	1973	T-178		42 A/15 SW
Mann Tp.	Duncan R. Derry Ltd.	Mag., grav., Turam		1973	T-1589	2.1300	42 A/14 SE
Mann and Newmarket Tps.	International Mogul Mines Ltd.	10 DDH - 4602'	Ni	1973-1974	T-1629		42 A/15 SW
Mann and Hanna Tps.	Noranda Exploration Co. Ltd.	VEM, Mag.		1973	T-1605	2.1331	42 A/15 NW
Matheson and Hoyle Tps.	Ecstall Mining Limited	HEM, Mag.		1973	T-1584	2.1346	42 A/11 SE
McArthur Tp.	Abitibi Asbestos Mining Co.	Mag. HEM		1973	T-1609	2.1342	42 A/3 N

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McArthur Tp.	Brehm,G.E.,19 Hollywood Cresc., Toronto,Ont. M4L 2K4	Trenching		1974	T-1570		42 A/3 NE
McArthur Tp.	Forget,M.,546 Spruce St.S., Timmins, Ont.	Trenching		1974	T-1565		42 A/3 NE
McArthur and Douglas Tps.	Sargent,P.,424 Patricia Blvd., Timmins, Ont.	Trenching		1974	T-1635		42 A/3 NE
McCrae,Cargill & Parnell Tps.	Barkhouse,H.,10 Maple Dr., Kapuskasing,Ont.	Correspondence*		1972	T-773		42 G/7
Montcalm Tp.	Phelps-Dodge Corp.of Canada Limited	3 DDH - 1099'	po,cp,py,sp	1974	T-1633		42 B/9 E
Mountjoy Tp.	Ecstall Mining Limited	Mag., HEM		1973	T-1593		42 A/6 NW
Mountjoy Tp.	Ecstall Mining Limited	Mag., HEM		1973,1974	T-1620	2.1401	42 A/6 NW
Murphy Tp.	Hollinger Mines Ltd.	Geol.,Mag.,HEM	po	1970,1971	T-688	2.1522	42 A/11 SE
Murphy Tp.	Hollinger Mines Ltd.	Mag.		1973	T-1616	2.1425	42 A/11 SE
Musgrove Tp.	Shadrack Mining Ltd.	HEM, Mag.,Geol. report,Prospectus* 4 DDH - 1062'	py, po, cp	1973,1974	T-1618	2.1427	42 A/3 NW
Neely Tp.	Cedam Limited	AMag		1973	T-1541	2.1411	42 G/10 SE
Newmarket & Mann Tps.	International Mogul Mines Ltd.	10 DDH - 4602'	Ni	1973-1974	T-1629		42 A/15 SW
Newton,Coppell & Heenan Tps.	U.S.Smelting & Refining Co.	12 DDH - 4101'*	Zn,Ag,py,cp,po	1970,1971	T-2263		410/16 SW
Nova Tp.	Amax Exploration, Inc.	4 DDH - 1333'	po,py,sp,mag.	1972,1973	T-721		42 B/8 NW
Nova,Belford & Watson Tps.	Phelps-Dodge Corp.of Can.Ltd.	6 DDH - 2639'	mag, po,py,cp,sp	1974	T-1632		42 B/9 W
Oates Tp.	Amax Exploration, Inc.	1 DDH - 837'	qcv-cp, po,py, cv-gn-sp	1971	T-721		42 B/8 NW
Ogden Tp.	Carlson,H.D.,110 Martin St., Porcupine, Ont.	Trenching		1973	T-1600		42 A/6 NE
Ogden Tp.	Pearce,A.,377 Patricia Blvd., Timmins, ONT.	Trenching		1973	T-1542		42 A/6 NW
Ogden Tp.	Sanford,G.,159A Maple St.S., Timmins, Ont.	Trenching		1973	T-1624		42 A/6 NW
Ophir, Dyer, Emerson,Hamlet, Heath,Hecla, Hobson, Hogg, Kilmer, Pitt & Valentine Tps., James Bay Area	Aquitaine Co. of Can. Ltd.	Seismic,grav.,* resistivity (electrical sounding), audio magneto-tellurics, DDH velocity and electrical logging, AMag.		1972,1973	T-1581		42 I/3-6
Parnell,Cargill & McCrae Tps.	Barkhouse,H.,10 Maple Dr., Kapuskasing,Ont.	Correspondence*		1972	T-773		42 G/7
Parnell Tp.	Castonguay,A.,Opasatika,Ont.	Stripping, blasting, trenching		1973,1974	T-1512		42 G/7 NW
Pitt, Dyer, Emerson,Hamlet, Heath,Hecla, Hobson,Hogg, Kilmer,Ophir and Valentine Tps.	Aquitaine Co. of Can.Ltd.	Seismic,grav.,* resistivity (electrical sounding), audio magneto-tellurics, DDH velocity & electrical logging, AMag.		1972,1973	T-1581		42 I/3-6
Prosser and Tully Tps.	Intex Mining Co. Ltd.	Prospectus*		1973	T-1637		42 A/11 NE
Reid Tp.	Newmont Mining Corp. of Canada Ltd.,Hollinger Mines Ltd.	5 DDH - 2701', DDC specs., Mag., VLF, Geol.	py,po,sp, Cu	1973,1974	T-40	2.1543 2.1549 2.1505 2.1511	42 A/12,13
Robb Tp.	Cincinnati-Porcupine Mines Ltd.	Mag., VLF		1973	T-902	2.1404	42 A/12 SE
Robb and Jamieson Tps.	Duncan R. Derry Ltd.	Mag.,Turam		1973	T-1607	2.1340	42 A/12 SE
Robb and Loveland Tps.	Noranda Exploration Co.Ltd.	VEM, Mag.		1973	T-1603	2.1331	42 A/12 NE
Robb Tp.	Ferron,L.,151 Wende Ave., Timmins, Ont.	Trenching		1973	T-1614		42 A/12 SE
Scholfield Tp.	Cedam Limited	AMag.		1973	T-2247	2.1410	42 G/5 SW

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Sewell Tp.	Card Lake Copper Mine Ltd.	1 DDH - 375'	py,cp,gn,po,sp	1974	T-44		42 A/5 SW, 42 B/1 NE
Sewell Tp.	Wright,A.,R.R. #1,Gilford, Ontario	3 DDH - 1202'	qv-gn,cp,sp,py	1974	T-1319		42 A/4 NW 42 B/1 NE
Shaw Tp.	Allerston,R.E.,322 Elm St.N., Timmins, Ont.	Stripping, trenching		1972,1973	T-1200		42 A/6 NE
Shaw Tp.	Arrowsmith,W.C.,R.R.#4, Stouffville, Ontario.	4 DDH - 771.5'	qv-py, cp	1974	T-211		42 A/6 NE
Shaw Tp.	Canadian Johns-Manville Co. Ltd.	3 DDH - 1528'	mag,talc,py,magn	1973	T-1613		42 A/6 NE
Shaw Tp.	Pac Explorations Ltd.	I.P.,Mag.,Geol.		1973	T-182	2.1289 2.1390	42 A/6 NE
Shaw Tp.	Pfeifer,F.,Box 382, South Porcupine, Ont.	Mag., VEM,trenching		1973,1974	T-214	2.1473	42 A/6 NE
Silk and Norwood Tps.	Leslie,H.T.,Rm. 706, 67 Yonge St.,Toronto	5 DDH - 2496'	Au, cp	1973,1974	T-2124		42 B/1 SW
Stock and German Tps.	Hollinger Mines Limited	1 DDH - 1141'	sp, py	1974	T-1627		42 A/10 SW
Stock Tp.	Humphries,L.,c/o H.Michie, Suite 401,25 Adelaide St.W., Toronto, Ont.	1 DDH - 265'		1974	T-1611		42 A/10 SW
Stock Tp.	Mining Corp. of Can.(1964)Ltd.	VLF,Mag.		1974	T-1630	2.1448 2.1562	42 A/10 SW
Thorneloe Tp.	Jacomo Mines Limited	Prospectus* VLF, Mag.		1974	T-1631	2.1497	42 A/6 SW
Tisdale Tp.	Lepic,A.,55 Emile Ave., Timmins, Ontario	Mag., VEM		1973	T-1582	2.1298	42 A/6 NW
Tisdale Tp.	Noranda Exploration Co.Ltd.	VEM, Mag.		1973,1974	T-1645	2.1528	42 A/11 SE
Tully and Duff Tps.	Duncan R. Derry Ltd.	Grav., Turam,Mag.		1973	T-1586	2.1357	42 A/14 SE
Tully Tp.	Hudson Bay Exploration & Development Co. Ltd.	1 DDH - 349'	py, cp	1974	T-1641		42 A/14 SE
Tully and Prosser Tps.	Intex Mining Co. Ltd.	Prospectus*		1973	T-1641		42 A/11 NE
Tully Tp.	Noranda Exploration Co.Ltd.	1 DDH - 458'*		1969	T-1346		42 A/14 SE
Tully Tp.	Questmont Mines Ltd.	VEM		1973	T-1626	2.1432	42 A/11 NE
Turnbull Tp.	Elar Mines Limited	VEM		1973,1974	T-1536	2.1435	42 A/5 NE
Turnbull Tp.	Nogar Mines Limited	VEM		1970	T-1439	2.413	42 A/5 NE
Valentine,Dyer, Emerson,Hamlet, Heath, Hecla, Hobson, Hogg, Kilmer,Ophir and Pitt Tps., James Bay Area	Aquitaine Co. of Can.Ltd.	Seismic,grav.*, resistivity (electrical sounding), audio magneto tellurics, DDH velocity and electrical logging, AMag.		1972,1973	T-1581		42 I/3-6
Wark Tp.	Ecstall Mining Limited	Mag., HEM		1973	T-461	2.1347	42 A/11 NE
Wark Tp.	Hollinger Mines Ltd.	2 DDH - 1217'	po	1974	T-688		42 A/11 NE
Watson,Belford & Nova Tps.	Phelps Dodge Corp. of Can. Ltd.	6 DDH - 2639'	mag. po,py,cp,sp	1974	T-1632		42 B/9 W
Whitesides Tp.	New Kolore Mines Ltd.	Prospectus*		1974	T-904		42 A/5 NE
Whitney Tp.	Summit Gold Mines Inc.	Mag., I.P.		1973,1974	T-1571	2.1439 2.1479	42 A/11 SE

1974 REPORT
# of the
KIRKLAND LAKE RESIDENT GEOLOGIST

by

H.L. Lovell

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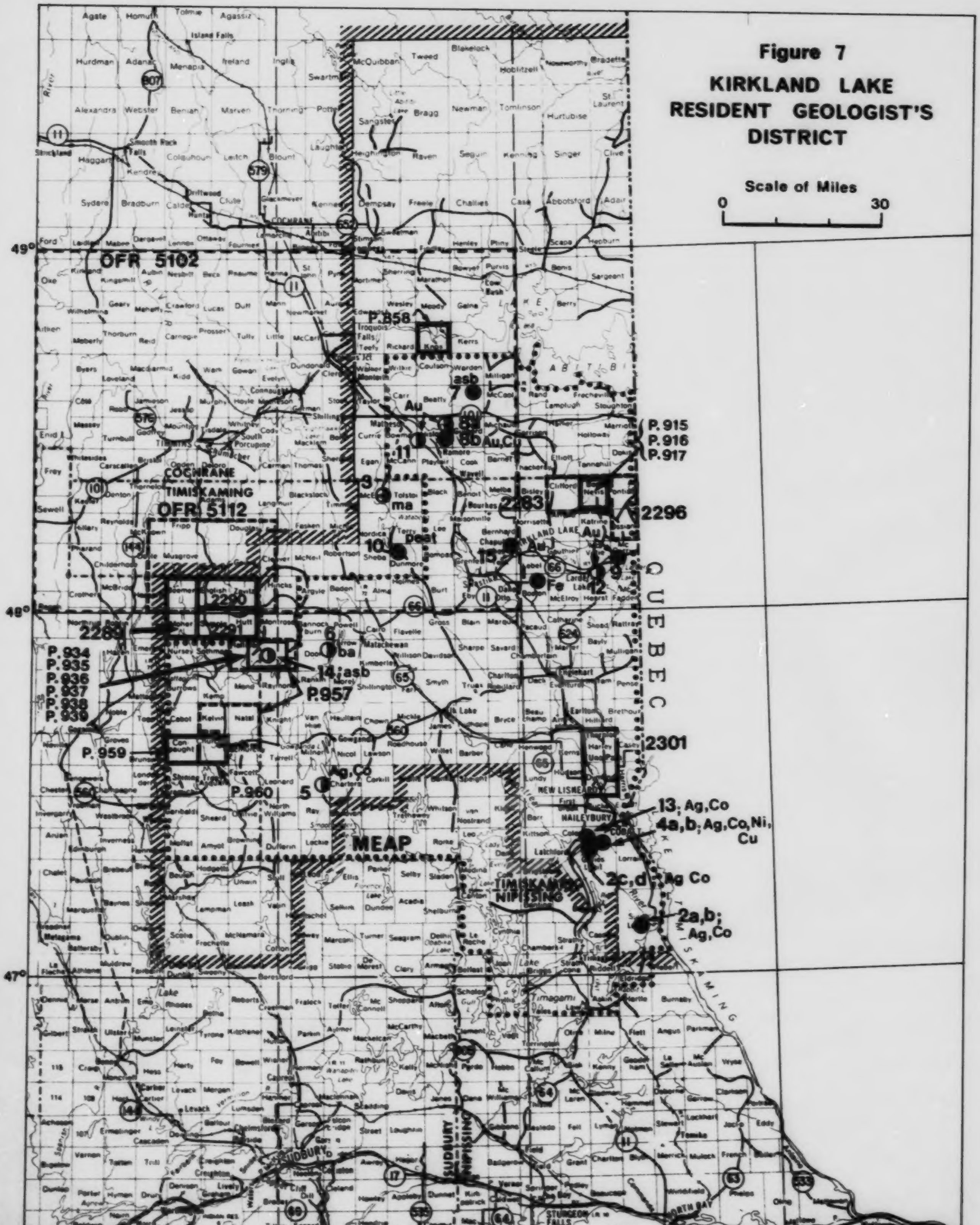

Figure 7
KIRKLAND LAKE
RESIDENT GEOLOGIST'S
DISTRICT

Scale of Miles
0
30
49°
48°
47°
81°
80°
79°
OFR 5102
OFR 5112
COCHRANE
TIMISKAMING
P.858
P.915
P.916
P.917
2283
2296
2289
2290
2291
P.934
P.935
P.936
P.937
P.938
P.939
P.957
P.959
P.960
2301
MEAP
TIMISKAMING
NIPISSING
SUDBURY
NIPISSING
QUEBEC
asb
7
Au
Au,Cu
11
3
ma
10
peat
15
Au
Fe
12
9
6
ba
14; asb
5
Ag,Co
13; Ag,Co
4a,b; Ag,Co,Ni, Cu
2c,d; Ag Co
2a,b; Ag,Co
COCHRANE
TIMMINS
KIRKLAND LAKE
NEW LISKEARD
HAILEYBURY
SUDBURY
NORTH BAY
STURGEON FALLS
ESPANOLA
LAKE NIPISSING
ABITIBI
Iroquois Falls
Matachewan
Smooth Rock Falls
Timagami
11
101
66
65
560
144
17
64
63
533
69
535
579
652
807

Index to Figure 7
Kirkland Lake Resident Geologist's District

MINE	STATUS	COMMODITY	TOWNSHIP
1. Adams Mine (Dominion Foundries and Steel Ltd.	●	Fe	Boston
2. Agnico-Eagle Mines Ltd.			
a) Exploration Frontier mine	●	Ag,Co	South Lorrain
b) Trout L. mine	●	Ag,Co	
c) Coniagas mine,Trethewey mine	●	Ag,Co	Coleman
d) Beaver mine,Timiskaming mine	●	Ag,Co	Coleman
3. Boudreau, Andre	◑	ma	McEvay
4. Canadaka Mines Ltd.			
a) Conisil mine	●	Ag,Co (Ni,Cu)	Coleman
b) University No. 3 mine	●	Ag,Co	Coleman
5. Devon Resources Ltd.	◑	Ag,Co	Leith
6. Extender Minerals of Canada Ltd.	◑	ba	Yarrow
7. Hedman Mines Ltd.	●	asb	Munro
8. Hollinger Mines Ltd.			
a) New Kelore mine	◑	Au	Hislop
b) Ross mine	●	Au,Cu	Hislop
9. Kerr Addison Mines Ltd.	●	Au	McGarry
10. Ministry of Natural Resources	●	peat	Dunmore
11. Pamour Porcupine Mines Ltd. - Canadian Arrow Mines Ltd. (Golden Arrow mine)	◑	Au	Hearst
12. Sudbury Contact Mines Ltd. - Laguerre mine	◑	Au	Hearst
13. Teck Corp. Ltd. - Silverfields mine	●	Ag,Co	Coleman
14. United Asbestos Inc.	◑	asb	Midlothian
15. Willroy Mines Ltd. - Macassa mine	●	Au	Teck

EXPLANATION

● Producing mine

◑ Mine under development

—— New maps and(or) reports (ODM)
----- with number
P - Preliminary Map
OFR - Open File Report
2290 - Coloured Geological Map

▨ Boundary of Resident Geologist's District

MEAP ••••••• Area for Mineral Exploration Assistance Program

METAL AND MINERAL REFERENCE

Ag - silver
Au - gold
Co - cobalt
Cu - copper
Fe - iron
Ni - nickel
asb - asbestos
ba - barite
ma - marl
peat - peat

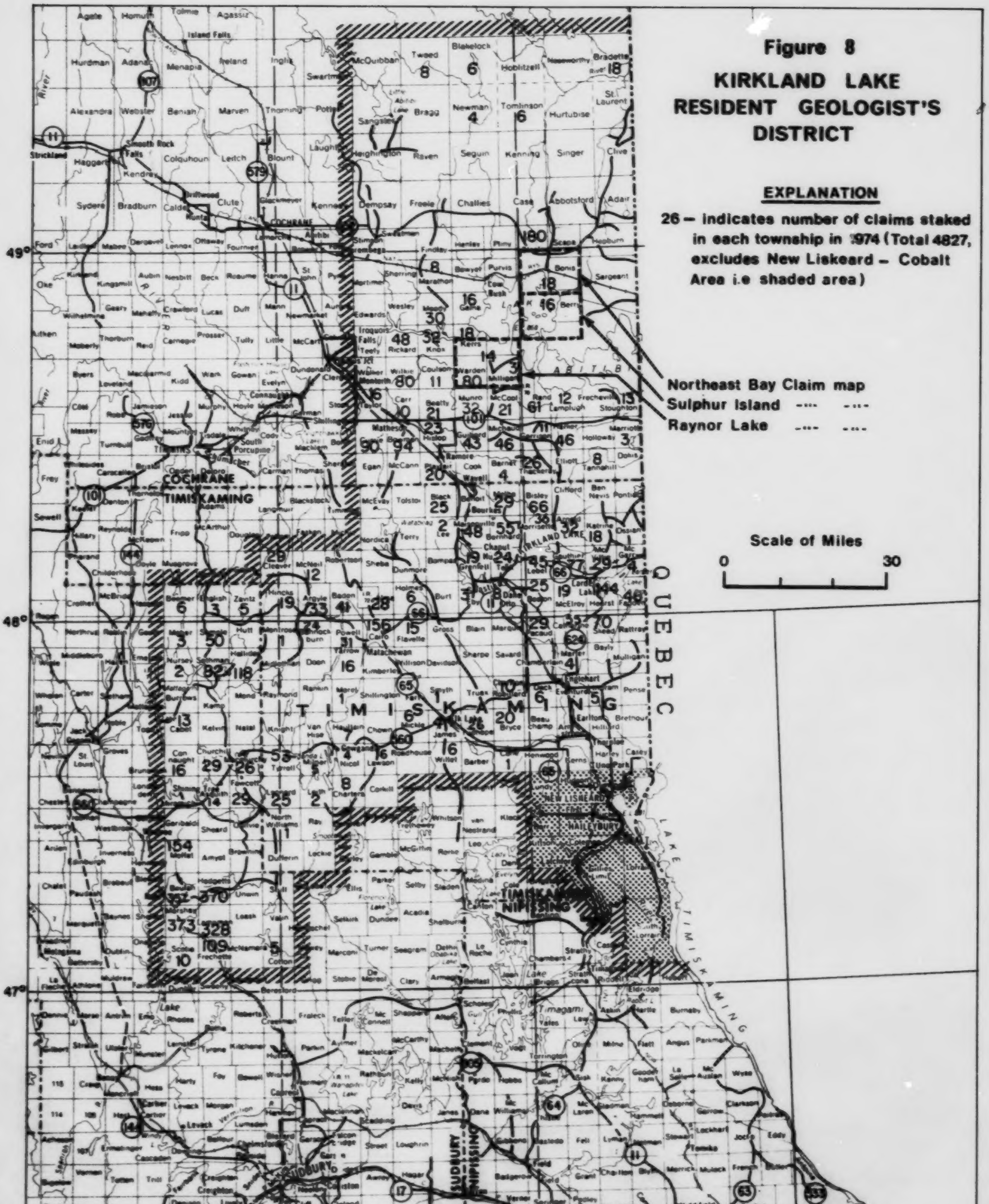
Northeast Bay Claim map
Sulphur Island
Raynor Lake
Scale of Miles
0
30
QUEBEC
TIMISKAMING
COCHRANE
COCHRANE TIMISKAMING
TIMISKAMING NIPISSING
SUDBURY NIPISSING
KIRKLAND LAKE
NEW LISKEARD
HAILEYBURY
SUDBURY
NORTH BAY
STURGEON FALLS
LAKE NIPISSING
LAKE TIMISKAMING
49°
48°
47°
81°
80°
79°

Figure 8

KIRKLAND LAKE RESIDENT GEOLOGIST'S DISTRICT

EXPLANATION

26 – indicates number of claims staked in each township in 1974 (Total 4827, excludes New Liskeard – Cobalt Area i.e shaded area)

1974 REPORT
# of the
KIRKLAND LAKE RESIDENT GEOLOGIST

by

H.L. Lovell[1]

INTRODUCTION: In 1974, the staff consisted of the Resident Geologist, a Geological Assistant, the services of a Secretary part-time, an assistant hired on a six-month contract to assist in completing a Mineral Deposits Circular for gold, and during the summer a geological field mapping assistant and three "Students Working on Resource Development".

Geological assistant Jan de Grijs resigned in September and was replaced in December by Frank Ploeger.

In 1973-74 the number of contracts written under the Ontario Government's Mineral Exploration Assistance Program was 117 for the Kirkland Lake and Cobalt-Gowganda areas. Under these contracts, which anyone doing mineral exploration may apply for, the mineral exploration company or individual is eligible for reimbursement by the government of one-third of verified expenditures up to a stipulated maximum.

In the Larder Lake Mining Division part of the Kirkland Lake Resident Geologist's district, 4,827 claims were staked in 1974 (compared to 3,260 in 1973). Of these, 1,701 were staked for placer gold in the Meteor Lake area south of Shining Tree. In the Sudbury Mining Division i.e., the Cobalt part of the Kirkland Lake Resident Geologist's district, an additional number of claims were staked.

RESIDENT GEOLOGIST'S ACTIVITIES: Duties of the Kirkland Lake Resident Geologist included: gathering and filing mineral exploration data from exploration companies and personnel, and geological information from various sources such as scientific journals, university theses, newspapers; discussions with prospectors and geologists concerning exploration possibilities and procedures; visits to mines and examinations of properties; conducting geological tours of the Cobalt and Kirkland Lake areas; composing monthly reports and the Kirkland Lake Resident Geologist's Annual Report;

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[1] Resident Geologist, Ontario Ministry of Natural Resources, 4 Government Road East, Kirkland Lake, P2N 1A2.

participating in Ministry of Natural Resources meetings and contributing advice and data dealing with land use; attending technical meetings and the Prospectors and Developers Association Convention in Toronto; mapping the geology of southern and eastern parts of Bayly Township (south of Larder Lake), the remainder of which is to be mapped in 1975; providing information on local geological matters to university, college, secondary and primary school students, as well as tourists and rockhounds.

GEOLOGICAL BRANCH ACTIVITIES: Geological mapping was carried out in the Ramore area by L.S. Jensen, in Natal and Knight Townships of the Shining Tree area by M.W. Carter, and in the Watabeag River area west of Matheson by D.R. Pyke.

RESEARCH AND MAPPING BY OTHER ORGANIZATIONS: During the 1974 field season, R.H. Ridler of the Geological Survey of Canada carried out research in economic geology and stratigraphy in the Kirkland Lake and Matachewan areas.

R. Hyde completed a second field season studying the sedimentology and stratigraphy of the Archean, Timiskaming Group's clastic and water-reworked pyroclastic rocks of the Kirkland Lake and Lake Timiskaming areas for his Ph.D. thesis at McMaster University.

Carleton University Field School was conducted in the Cobalt area during the springtime, with R. Yole in charge.

D. Gamble began thesis work for his Laurentian University M.Sc. program on trace elements in parts of the Macassa gold mine.

A. Hartlein worked on his University of Toronto thesis on sulphides in Silverfields mine, Cobalt.

NEW MINING AND DEVELOPMENT OPERATIONS:

Cobalt Area: In 1974, Agnico-Eagle Mines Limited acquired by auction from the Ontario Government the claims JB6 and JB7 in the Town of Cobalt, and began underground development of silver ore.

In 1974, Canadaka Mines Limited acquired by auction from the Ontario Government the tailings on claims JB6 and JB7 in the Town of Cobalt, and has already begun recovery of silver from the tailings.

Also in Cobalt, Canadian Smelting and Refining (1974) Limited acquired a silver refinery and mint, both of which had been partially constructed by Silver Shield Mines Limited, and proceeded to construct a silver refinery. The refinery will install an acid wash process designed to extract silver from the Cobalt-Gowganda area type of silver-cobalt-copper-nickel-bismuth ore. Production is planned to begin in March 1975.

Gowganda-Elk Lake Area: Devon Resources Limited began refurbishing the plant at the former Rusty Lake silver mine south of Gowganda. The intention is to mill the stockpile of silver ore and regain access underground to explore for silver ore in place.

Matachewan Area: United Asbestos Incorporated accomplished most of the site preparation, building construction, and road building program in 1974 at its asbestos deposit 19 miles (30 km) west of Matachewan. The plans are to begin production in July 1975. The new road will enable Extender Minerals of Canada Limited to truck its barite ore to its mill near Matachewan. Heretofore the barite ore haulage trucks had to be barged across Mistinikon Lake.

Granges Exploration (Canada) AB drilled more than 40 holes west of Matachewan on geophysical anomalies detected by airborne electromagnetics.

Holtyre-Matheson Area: The New Kelore Mines Limited property has undergone much exploratory diamond drilling by Hollinger Mines Limited, and a new headframe has been raised. Hollinger Mines Limited may begin mining gold ore there in 1975, with milling to be done at the nearby Hollinger Mines Limited Ross mine site (The Northern Miner, October 24, 1974, p.1).

On the Canadian Arrow Mines Limited property near Holtyre several hundred tons of gold ore from a large surface rock trench were mined and milled by Pamour Porcupine Mines Limited.

Kirkland Lake-Larder Lake Area: The Sudbury Contact Mines Limited gold option (the former Laguerre mine) at Larder Lake Village underwent appreciable work. The work completed in 1974 consisted of diamond drilling, recollaring the shaft, and raising a new headframe.

SAND AND GRAVEL: A total of 344,337 cubic yards (263,973 m^3) of sand and gravel were authorized to be removed from Crown Land on permits issued by the Larder Lake Mining Division Recorder's office. This does not include material in the Cobalt area (Sudbury Mining Division), or permits issued to the Ministry of Transportation and Communications.

RECOMMENDATIONS FOR EXPLORATION: Percussion drilling has been proven technically successful in testing copper-molybdenum-gold disseminated mineralization in areas of moderately well-drained land (i.e., not muskeg or clay belt, which cause transportation and other problems for the drill which is self propelled on narrow tracks and for the compressor which is trailed behind the drill and is on rubber-tired wheels) west and east of Matachewan. A comparison between dry percussion drilling and diamond drilling indicates that analyses of complete sludge returns ("chips") check out surprisingly accurately with analyses of continuous split core. Dry percussion drilling depends on returning the rock "chips" by the force of compressed air, with which water seams interfere. Wet percussion drilling provides more assured return of chips, e.g., if a water seam is intersected, but is much more expensive during the winter. Footage costs in summer ran about 4 dollars per foot (13 dollars per metre), including moves. The system is capable of testing bedrock to depths approaching the range of open pits, e.g., 200 feet (60 m), and for the first time renders economically justifiable the evaluation of the low grade disseminated copper-gold-molybdenum mineralization characteristic of certain zones in and near syenitic intrusions in the Matachewan-Kirkland Lake-Larder Lake area.

In addition to the regular township geological maps, other maps that can serve as a guide to areas favourable for exploration are: "Geochemical Distribution of Aqua Regia Soluble Copper in Felsic Plutonic Rocks, Cairo Township and parts of Alma, Holmes, and Flavelle Townships" (Wolfe 1972); and "Geochemical Distribution of Acid Soluble Copper in Felsic Plutonic Rocks, Otto Township and parts of Eby, Marquis, and Boston Township" (Wolfe and Wright 1971).

Environments Favourable for Gold Mineralization in the Kirkland Lake Area: With the demand for gold the most improved of all the metals in 1974, as indicated by price increases, more mineral exploration is being directed towards discovering gold than at any other time during the past 25 years. The main problem for gold exploration is not that the deposits are too small to be economic using modern high tonnage mining methods: witness the Hollinger, McIntyre, Dome, and Kerr Addison mines, and the mines in in the Town of Kirkland Lake. Rather, the problem is that few gold deposits could be discovered using geophysical techniques developed and perfected for discovering base metals in environments containing relatively high concentrations of metallic minerals. Finding gold deposits, most of which are in geological environments not anomalously high in magnetic or conductive materials, depends more on the somewhat less exact science of drilling "geological bets", and this requires good knowledge of structures, rock formations, and local geology.

From its beginning in 1916 until the end of 1973 the Kirkland Lake-Larder Lake-Matachewan "gold camp" produced 35,263,063 ounces of gold and more than 6 million ounces of by-product silver (Resident Geologist's Files, Ontario Ministry of Natural Resources, Kirkland Lake). The average grade of ore was high, approaching ½ ounce of gold per ton. This high average grade is in part a function of selective mining. What accommodated the selective mining methods were rich ore shoots that lent themselves to mining methods using a relatively high cut-off grade. In places, ore shoots were discrete in that a natural cut-off point existed between barren wallrocks and the gold-bearing quartz veins and adjacent wall-rock alteration zones.

Most of the gold probably originated from ultramafic rocks, syenitic rocks and clastic and chemically precipitated sedimentary rocks, most of which built up from the sea bottom to form an island arc. The principal host rocks of the gold mineralization are:

a) syenite and trachyte (some of the trachyte is tuffaceous), and related porphyritic rocks;
b) low grade Algoma-type iron formation of the sulphide and carbonate facies, with some of the carbonate rocks having a spatial and possibly genetic relationship to ultramafic rocks; and
c) Timiskaming-type metasediments, which additionally form the bulk of the country rocks.

Gold deposits on the adjoining Upper Canada, Queenston, and Anoki properties (all controlled by Upper Canada Resources Limited) serve as a model for the type present in the Matachewan-Kirkland Lake-Larder Lake area. The Upper Canada mine ore occurs in a syenitic-trachytic volcanic pile consisting of feeders occupying vents, hypabyssal apophyses, and nearby related trachytic flows, tuffs, and breccias or agglomerates (Tully 1963, p.66)[1]. The gangue consists mainly of vein quartz a lesser amount of carbonate minerals, and adjacent reddish hematite-stained wallrock feldspars. Some of the ore, however, is in bedded trachytic tuff containing no free quartz, and therefore, might be modified syngenetic gold ore. Tully (1963, p.79, 81) suggested that gold-bearing quartz veins originated from silica liberated from feldspars during sericitization in alteration zones (presumably those formed in syenite, trachyte, ultramafic rocks and Timiskaming-type sedimentary rocks).

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[1] The references for this discussion are listed under "Recent Publications and References".

On the flanks of the Upper Canada mine volcanic centre are gold-bearing quartz-veined green dolomitic and brown ankeritic rocks of the Queenston property, and sulphide-rich rocks near the Anoki shaft. Perhaps as suggested by Ridler (1970, p.39) for gold ore of the type at the Kerr Addison mine, these may represent the carbonate and sulphide facies of (low grade) iron formation that was deposited as a result of hot springs (i.e. exhalative) activity. Later, the gold within these formations may have been concentrated into ore deposits by reconstitution of the carbonate rock, as a result of heat and pressure. The original carbonate minerals have been recrystallized, original mud may now be represented by micas, and original chert and free silica may, to a considerable extent, have been remobilized and redistributed as several generations of quartz veins.

According to C. Donig[1] (personal communication), the second and third generations of quartz veins at the Kerr Addison mine are the main source of gold in the ore zones in the carbonate rocks, the gold typically occurring in the free state in white to dark grey quartz within 2 inches (5 cm) of wallrock or inclusions, both of which are composed of micaceous or chloritic material. Ridler (1970, p.39) regards the gold-bearing sulphide strata ("dacite flow" and "tuff" ore at the Kerr Addison mine) as low grade sulphide facies of iron formation. Some of the gold is free, some occurs in pyrite, and some in arsenopyrite. Accessory metal-bearing minerals present are pyrrhotite, chalcopyrite, galena, sphalerite, and scheelite.

The chromium in the green fuchsite of the "green carbonate rock" (dolomite) has long been known to have geochemical affinities with, and thought possibly to have originated from, ultramafic rocks. Certainly in the Kirkland Lake-Larder Lake-Matachewan area the magnetite-chert iron formation, green dolomitic and brown ankeritic rocks, carbonaceous ("graphitic") pyrite-pyrrhotite-containing schistose or slaty tuffs and mudstones, serpentinite flows and sills, and felsic ("rhyolitic") pyroclastics all are concordant or subconcordant layered formations that are present in the same geological environment, in many places being intercalated. A number of workers have postulated that gold in the carbonate rocks also came from ultramafic rocks. Wells et al. (1969) did not recognize any genetic relationship between the porphyry intrusion and the gold in carbonate rocks near Cortez, Nevada. Viljoen et al. (1969) regarded the mafic to ultramafic volcanic rocks and not the intrusive granitic rocks as the ultimate source of gold in the Steynsdorp Goldfield of South Africa. Viljoen et al. furthermore found the gold content of extrusive rocks to be greater than that of equivalent intrusive rocks. Pyke (1974, p.97) thought that much of the carbonate rock exposed in Night Hawk Lake's Northeast Bay consists of carbonatized ultramafic flows, and noted that they stratigraphically underlie the gold deposits at the north end of the lake. Jensen (1974, p.102,103) stated that the most favourable locations for gold in the Ramore area appear to be near and within zones of ultramafic volcanic rocks high in magnesium, previously described as talc-chlorite schists and carbonate rocks. His evidence for this includes the New Kelore Mines Limited property being developed for production by Hollinger Mines Limited, where gold is associated with carbonate rocks having polysuture fracturing characteristic of ultramafic lava flows. Jensen stated further that many of the "carbonate rocks" in the area between Kirkland Lake and Virginiatown can be shown, on the basis of polysuturing and spinifex textures, to be ultramafic flows.

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[1] Geological Department, Kerr Addison Mines Limited.

The gold mines in the Town of Kirkland Lake are similar to the Upper Canada mine described above. Geologically they are one single deposit 3 miles (5 km) long and 1½ miles (2.4 km) deep. The considerable length of this ore zone is partly a result of the long narrow sill-like configuration of the host syenite pipe. Also it is partly a result of "elongation" caused by the upthrow, on the western side of the Lake Shore Cross Fault, of the western part of the southwest-plunging syenite pipe. As at the Upper Canada mine, most of the gold in Kirkland Lake mines is in syenitic rocks, but instead of forming a volcanic vent complex, the syenite at Kirkland Lake forms a pipe-like body, plunging about 45W, that may never have vented through to surface. Dark coloured augite syenite forms the peripheral phase of the pipe, and the younger, central phases are paler coloured, more felsic differentiates such as syenite porphyry. The high grade ore is in quartz veins in the Kirkland Lake "Main Break" and similar faults and fractures that provided open spaces permeable to gold-bearing fluids, prior to mineralization by the ore fluids. Gold is present as native metal and in the tellurides: calaverite, $AuTe_2$; and petzite, Ag_3AuTe_2, and is associated with fine-grained pyrite, which makes up about 2 percent of the ore. Other minerals in the ore are potassium feldspar, albite, ankerite, barite, tourmaline, actinolite, apatite, sericite, chlorite, hematite, chalcopyrite, galena, sphalerite, molybdenite, carbonaceous material or graphite, and the tellurides: altaite, PbTe; coloradoite, HgTe; and melonite, $NiTe_2$.

The Otto Township alkalic igneous stock, younger than the host rocks of the gold ore at Kirkland Lake and only 4 miles (6.4 km) away, created a broad metamorphic aureole ranging outward from augite-biotite mineral assemblages through epidote-garnet amphibolite assemblages to chloritic mineral assemblages. Possibly the thermal effect of the Otto stock is responsible for having concentrated protore at Kirkland Lake into ore. The protore is assumed to have been formed syngenetically with the host syenite as a result of a hydrothermal convection system within the syenite itself or induced convection within water-saturated Timiskaming-type sediments that were at that stage only partly indurated.

The environment of the gold ore at Matachewan also is comparable with that of the Upper Canada mine described above. The main host rock of the ore at the Young-Davidson mine is syenite of various colours and phases, the whole complex forming pipe-like intrusions that may represent a volcanic neck. The host rocks at the adjacent Matachewan Consolidated mine consist of syenite and flanking green dolomite and pyritiferous schist. The low grade of the gold ore in the Matachewan mines in comparison to those in the Kirkland Lake-Larder Lake area was partly a function of the mining methods (large tonnage, glory hole, blast-hole stoping) used by the operators.

ODM MAPS AND REPORTS ISSUED BY THE GEOLOGICAL BRANCH IN 1974:

P.858	Knox Township, District of Timiskaming (42 A/9, 42 A/16), Kirkland Lake Data Series. Data compiled by H.L. Lovell, E.D. Frey and Jan de Grijs assisted by the staff of the Geological Survey of Canada, 1972, 1973. Scale 1 inch to ¼ mile or 1:15,840.
P.915	Geochemical Distribution of Zinc in Volcanic Rocks, Ben Nevis Township and parts of Clifford and Pontiac Townships, District of Timiskaming (32 D/5). Geochemistry by W.J. Wolfe, 1972. Geology by L.S. Jensen and assistants, 1968. Geochemical contours in red. Scale 1 inch to ¼ mile or 1:15,840.
P.916	Geochemical Distribution of Nickel in Volcanic Rocks, Ben Nevis Township and parts of Clifford and Pontiac Townships, District of Timiskaming (32 D/5). Geochemistry by W.J. Wolfe, 1972. Geology by L.S. Jensen and assistants, 1968. Geochemical contours in red. Scale 1 inch to ¼ mile or 1:15,840.
P.917	Geochemical Distribution of Copper in Volcanic Rocks, Ben Nevis Township and parts of Clifford and Pontiac Townships, District of Timiskaming (32 D/5). Geochemistry by W.J. Wolfe, 1972. Geology by L.S. Jensen and assistants, 1968. Geochemical contours, in red. Scale 1 inch to ¼ mile or 1:15,840.

P.934	Geochemical Distribution of Zinc in 'B' Horizon Soils and Till Components in parts of Halliday and Midlothian Townships, Districts of Sudbury and Timiskaming (41 P/14E, 41 P/15W). Geochemical field work by L.G. Closs and assistants, 1973. Geochemical compilation by L.G. Closs, 1973, 1974. Scale 1 inch to ¼ mile or 1:15,840.
P.935	Geochemical Distribution of Nickel in 'B' Horizon Soils and Till Components in parts of Halliday and Midlothian Townships, Districts of Sudbury and Timiskaming (41 P/14E, 41 P/15W). Geochemical field work by L.G. Closs and assistants, 1973. Geochemical compilation by L.G. Closs, 1973, 1974. Scale 1 inch to ¼ mile or 1:15,840.
P.936	Geochemical Distribution of Cobalt in 'B' Horizon Soils and Till Components in parts of Halliday and Midlothian Townships, Districts of Sudbury and Timiskaming (41 P/14E, 41 P/15W). Geochemical field work by L.G. Closs and assistants, 1973. Geochemical compilation by L.G. Closs, 1973, 1974. Scale 1 inch to ¼ mile or 1:15,840.
P.937	Geochemical Distribution of Chromium in 'B' Horizon Soils and Till Components in parts of Halliday and Midlothian Townships, Districts of Sudbury and Timiskaming (41 P/14E, 41 P/15W). Geochemical field work by L.G. Closs and assistants, 1973. Geochemical compilation by L.G. Closs, 1973, 1974. Scale 1 inch to ¼ mile or 1:15,840.
P.938	Geochemical Distribution of Copper in 'B' Horizon Soils and Till Components in parts of Halliday and Midlothian Townships, Districts of Sudbury and Timiskaming (41 P/14E, 41 P/15W). Geochemical field work by L.G. Closs and assistants, 1973. Geochemical compilation by L.G. Closs, 1973, 1974. Scale 1 inch to ¼ mile or 1:15,840.
P.939	Geochemical Distribution of Manganese in 'B' Horizon Soils and Till Components in parts of Halliday and Midlothian Townships, Districts of Sudbury and Timiskaming (41 P/14E, 41 P/15W). Geochemical field work by L.G. Closs and assistants, 1973. Geochemical compilation by L.G. Closs, 1973, 1974. Scale 1 inch to ¼ mile or 1:15,840.
P.957	Quaternary Geology of Halliday, Midlothian, Kelvin, Natal Townships and parts of MacMurchy and Churchill Townships, Districts of Sudbury and Timiskaming (41 P/11, 41 P/14E). Geology by E.V. Sado and W.A. Clarke, 1973. Scale 1 inch to ½ mile or 1:31,680.

P.959	Connaught Township, District of Sudbury (41 P/11W). Geology by M.W. Carter and assistants, 1973. Scale 1 inch to ¼ mile or 1:15,840.
P.960	Churchill Township, District of Sudbury (41 P/11). Geology by M.W. Carter and assistants, 1973. Scale 1 inch to ¼ mile or 1:15,840.
Map 2229	Index to Aeromagnetic Maps of Ontario, Revised 1974. Scale 1 inch to 30 miles, or 1:1,900,800.
Map 2283	Clifford and Ben Nevis Townships, District of Timiskaming (32 D/5). Geology by L.S. Jensen and assistants, 1969. Scale 1 inch to ½ mile or 1:31,680.
Map 2289	Beemer and Moher Townships, District of Sudbury (41 P/14, 42 A/3). Geology by E.G. Bright and assistants, 1967 and 1968. Scale 1 inch to ½ mile or 1:31,680.
Map 2290	English and Zavitz Townships, District of Sudbury (42 A/3). Geology by E.G. Bright and assistants, 1967. Scale 1 inch to ½ mile or 1:31,680.
Map 2291	Semple and Hutt Townships, District of Sudbury (41 P/14, 42 A/3). Geology by E.G. Bright and assistants, 1968. Scale 1 inch to ½ mile or 1:31,680.
Map 2296	Pontiac and Ossian Townships, District of Timiskaming (32 D/4, 32 D/5). Geology by L.S. Jensen and assistants, 1970. Scale 1 inch to ½ mile or 1:31,680.
Map 2301	Harley and Dymond Townships, District of Timiskaming (31 M/5, 31 M/12). Geology by H.L. Lovell, E.D. Frey and assistants, 1970. Scale 1 inch to ½ mile or 1:31,680.
Map 2310	Ontario Mineral Map. Compilation by the Geological Branch, Ontario Division of Mines. Revised 1974. Scale 1 inch to 25 miles or 1:1,584,000.
MP57	Annual Report of Resident Geologists' Section, Geological Branch, 1973, edited by C.R. Kustra, 192p.
MP59	Summary of Field Work, 1974, by the Geological Branch. Edited by V.G. Milne, D.F. Hewitt and K.D. Card, 206p. plus various figures and key maps.

OFR5102	Gravity Survey of Geological Structures in the Timmins and Matheson Areas, Districts of Cochrane, Timiskaming and Sudbury. Survey by R.S. Middleton and assistants, 1970, 1971, 105p., 17 figs., 1 table, 2 maps, scale 1 inch to 4 miles or 1:253,440.
OFR5103	Selective Retrieval from the Canadian Index to Geoscience Data on (1) Assessment Work (1972, 1973) Filed with the Ontario Division of Mines, and (2) Reports Received under Ontario's Mineral Exploration Assistance Program (MEAP) by H.A. Groen.
OFR5104	Ontario Occurrences of Float, Placer Gold, Indicator Minerals for Kimberlite, etc., A. Ferguson, 225p., 6 figures.
OFR5112	Geology of the Peterlong Lake Area, Districts of Timiskaming, and Sudbury, by D.R. Pyke, 92p., 7 tables, 8 photos (Xerox copies), 7 figs., and one map, scale 1 inch to 1 mile or 1:63,360.
OFR5114	Mineral Exploration Assistance Program (MEAP), Fiscal Years 1971-72, 1972-73, and 1973-74 by S.A. Ferguson, E. Bayer and S.C. Sun, 70p.
1973 Review	Ontario Mineral Review, 1973, 136p., with various tables, figures, and photos.

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Table 17 Assessment Work and Other Information Received in 1974

Kirkland Lake Resident Geologist's District

AEM	Airborne electromagnetometer survey	Gc	geochemical survey	R	resistivity survey
AM	airborne magnetometer survey	geol	geology	rTr	rock trenching
DH	diamond drill hole(s)	HS	DH core samples	SP	self potential
EM	ground electromagnetometer survey	IP	induced polarization survey	sTr	soil trenching and stripping
Gb	biogeochemical survey	Mag	ground magnetometer survey	Gr	gravity survey

Township	Name of property file	Kind of data
Abbotsford	Stanford Mines Ltd.	prospectus, Aug. 1973; EM (2) (1" = 200'), Mag (1" = 200') & rept. by E. W. Bazinet, Oct. 1972
Argyle	Sunisloe, George	Str sketch, Sep.-Nov. 1973; sTr sketch Jul. 1974
	New Kelore Mines Ltd.	prospectus, Jan. 1974; DH 1 to 8, Feb. 1974; assay results; geol, Gc & Mag (1" = 200') & rept. by S. S. Szetu, Mar. 1974
	Witherspoon, J. A.	DH 1 to 8, Feb. 1974
Arnold	Mathias, Isaac	sTr sketch, Jun. 1974
Asquith	Vintage Mines Ltd.	prospectus, Aug. 1973; corresp. Mar. 1974; DH V1 to V6, Dec. 1973 to Feb. 1974 & locations (1" = 20' & 1" = 200'); XH's (4) (1" = 20') & (1) (1" = 40') Jan. - Feb. 1974; EM (2) (1" = 200') & rept. by J. D. McCannell, Jan. 1974
	Seville, Albert	sTr sketch, Apr. to Jun. 1974; sTr sketch, Jul., Aug., Oct. 1974
	McBride, William W.	sTr sketch Oct. 1973, Aug. 1974
Baden	Ronda Copper Mines Limited	DH 1-73 to 8-73, loc.(1" = 30') Aug.-Oct. 1973; assays Aug.-Oct. 1973; Mag (1" = 200') with rept by Michael Ogden, Nov. 1973; prospectus Jan 1974; corresp. Oct. 1973 & Jan. 1974; DH 9 - 11 & 13, Feb. 1974, loc (1" = 200') Sep. 1974
	Melville Mines & Industries Ltd.	rept. by R. J. Bradshaw, Apr. 1973; EM (2), Mag, geol (1" = 200'), Sep. 1971 & repts. by R. J. Bradshaw & W. Gilman, Oct. 1971
Bannockburn	Quevillon, Gerald	sTr sketch May-Jun. 1974; rTr sketch Aug.-Sep. 1974
	Sunisloe, George	Mag, EM (L" = 200') & rept. by C. A. Veilleux, Nov. 1973
Bartlett	Granges Exploration (Canada) AB also English, Geikie, Halliday, Hincks, Hutt, Montrose, Sample, Sothman & Zavitz Tp.	EM & Mag (combined) (1" = 1320') (6) & rept by D. Watson, Sep. 1974
Beatty	Canadian Johns-Manville Company Ltd. also Hislop Tp (see also Hislop Tp)	EM (3) (1" = 200'), prop plan (1" = 4 mi.), 1974 & rept by P.A.R.Brown & F.J.Evelegh, Feb. 1974; geol (2) (1" = 400'), geol (4) (1" = 50'), Feb. 1973, sample loc.(3) (1" = 10') & repts by J.H.Morris, Jul. & Oct. 1972; loc.plan (1" = 4 mi.), Feb. 1974; Mag (1" = 200'), EM (1" = 200') (8) Apr. 1974; loc.plan (H) (1" = 1000') Apr 1974 & rept by F.J.Evelegh, Apr. 1974
	Hewitt, Ernest	rTr sketch, Aug.-Sep. 1974
	Shenandoah Mines Inc.	Mag, Em, Geol (1" = 400') & rept. by J.R.Boissonnault, May 1974
Benoit	Bruno, Ernest	sTr sketch, Jun.-Jul. 1973
	Mathan Explorations Inc. "Honsberger, John" claims (Saskoba Mines Inc.)	prospectus, Mar. 1974; Mag, EM (1" = 200') & rept by W.N.Ingham, Dec. 1972; EM, Mag, geol (1" = 200' & 1" = 300'), Jan. 1974 & rept. by W.N.Ingham, Jan. 1974
Ben Nevis	McIntyre Porcupine Mines Ltd. also Dokis & Tannahill Tp.	Ben Nevis & Tannahill) Mag, EM (1" = 200') Oct. 1973 & rept by A. Skrecky, Dec. 1973
	Amax Exploration, Inc. also Katrine & Pontiac Tp.	IP (1" = 400'), May 1973; IP & DH loc (1" = 400') & rept.by D.R.Hambe & W.R.Ryall, Jul. 1973; DH TX-107-73 to TX-108-73, Jan. 1973 (Pontiac)

Township	Name of property file	Kind of data
Bernhardt	Lavallee, Aristide H.	rTr sketch, Feb. 1974
	Kinika Gold Mines Ltd.	rept. by J.W.Webb, Apr. 1937
	Consolidated Beaumont Resources also Maisonville Tp.	Mag, EM (1" = 200') & rept. by S.S.Szetu, May 1974
	Deloye, Ernest C. (in part Hose-Warner Mining Ltd. option) also Morrisette Tp	sTr sketch Jul.-Aug. 1974
Black	Bruno, Ernest	rTr sketch, Sep. 1973
	Hurd, Donald F.	rTr sketch, Jun. & Nov. 1973
	Boland, C. L.	rTr sketch Oct. 1974
	McAllister, Charles	Mag (1" = 200') & rept. by M. Juby, Aug. 1974
Boston	Planet Gold Mines Ltd.	sketch map (1" = 150'); rept.by C. Simpson, circa 1974
Bowman	Drilltex Ltd.	EM (1" = 200') Feb. 1974 & rept. by W.Brereton, Nov. 1973
Bradette	Dome Exploration (Canada) Ltd. also Hurtubise & Hossworthy Tp.	Turam (9) (1" = 200'), Mag (9) (1" = 200'), Oct. 1973 & rept. by J.A.Woodard, Nov. 1973
	Noranda Exploration Co. Ltd.	Mag & EM (1" = 400') & rept. by W.F.Graham, Sep. 1974
Bryce	Consolidated Imperial Minerals Ltd.	Mag (1" = 200') & rept by T.Gledhill, Jul. 1973; rept. by T.Gledhill, Jan. 1974 (no map); DH 74-1 to 74-6, May-Jun. 1973 & loc (1" = 60', 1" = 50'), Jul. 1974
	Northville Explor. Ltd.	rept.by R.J.Bradshaw, Feb. 1973
	Gore, John A.	EM (1" = 400') (2) & rept. by J.G.Willars, Aug. 1974
Bucke	Saint Joseph Explorations Ltd. "Sea Lake group" also Coleman Tp.	DH SL-4 to L-15, Nov. 1973 - Jan. 1974; loc.(1" = 400'); XH's (1" = 100'); rept. by R.M.Ginn, Feb. 1974; DH locations & EM (1" = 400') with rept. by
	Brown, Theodore D.	DH 1, May 1974 & location (no scale), Jun. 1974; XH (1" = 10') Jun. 1974
Burrows	Dome Mining Co. Ltd. "DesRosiers, David F. claims"	Mag, EM (1" = 200') & repts. by R.H.Clayton, Feb. 1974
Cairo	King, Henry	rTr sketch Sep. 1973, Jun. 1974
	Newman, Roy	DH N1 & N2, Sep.-Oct. 1973 & loc.(1" = 300')
	Ecstall Mining Limited also Flavelle Tp.	rTr sketch, Sep. 1974
	Garbutt, Fred J.	Gc (1" = 100') & rept. by F.J.Garbutt, Jul. 1974; Mag (1" = 100') & rept. by F.J.Garbutt, Jun. 1974
Catharine	Walsh-Taylor	loc.sketch (1" = 100') Jun. 1922
	MacGregor, R.A. also Hearst, McElroy & McVittie Tp.	EM (2) (1" = 200') & repts. by R.A.MacGregor, Feb. 1974
	Niemi, Walter	rTr sketches, Jun.-Aug. 1972 (2) (1" = 400'); rTr sketches, May-Jun. 1974
	Walsh, William H.	sTr sketch, May-Jun. 1974
	Armstrong, Roy	sTr sketch, Jul-Oct. 1973, Jul.1974
	Moncrieff Uranium Mines Ltd.	DH M74-1 to M75-5, May-Jun. 1974 & loc.(1" = 200'), loc & rTr combined (1" = 20'); rTr sketch Jun.-Oct. 1974
	Anderson, Bruce	sTr sketch, Jun.-Aug. 1974
Coleman	Burton, Douglas "Green Lake"	DH 73-91-2 loc.sketch (1" = 200'), XH (1" = 100') Jan. 1974 (2)
	Consolidated Summit Mines Ltd. (see also Silver Summit Mines Ltd.; Savage; Ausic; Silverfields; Mensilvo)	prospectus, Nov. 1973
	Saint Joseph Exploration Ltd. also Bucke Tp.	see under Bucke Tp.
	The Ophir Mines Development Co. of Ontario Ltd.	DH 73-05-1 & loc.(1" = ¼ mi.) Jun. 1974; vert. sect. (1" = 1200') Jun. 1974

Township	Name of property file	Kind of data
Connaught	Amalgamated Rare Earth Mines Ltd. "Mid-North Engineering Services Ltd."	DH AC74-1 to Ac74-3, Feb. 1974, loc.(no scale) & rept. by H.G.Harper, Feb. 1974
	Coniston Explorations & Holdings Ltd.	DH G72-1 to G72-4, Nov. 1972; loc.DH & EM (" = 100' & 1" = 200'), Dec. 1972 & rept. by H.G.Harper, Dec. 1972
	Goldhurst Resources Inc.	rept. by C.W.Archibald, Sep. 1972 & Sep. 1973
	Tagliamonte, Frank; Fedora, John A. also Guibord Tp.	EM, Mag (2) (1" = ¼ ml.) & rept. by D.C.Fraser, Sep. 1973
Coulson	Kennedy, William	sTr sketch, Apr.-Jun. 1973
	Abitibi Paper Co. Ltd. also Rickard Tp.	various corresp. Aug.-Oct. 1973; DH 1, Feb. 1974; DH 1-2, Apr. 1974, locations (1" = 40' & 1" = 100'); IP & R (3) (1" = 200'), Jul. 1973 Mag, Em (1" = 200'), Oct. 1973 & repts. by T. Gledhill, Oct. 1973 & Feb. 1974; IP pseudo section (1" = 40'); DH loc.(1" = 200') with rept by J.A.McGregor, Feb. 1974; (Coulson & Rickard) AEM (1" = 1320') & rept by D.Watson, May 1973
Dokis	Amax Exploration, Inc.	geol rept. by D.R.Hawke, Sep. 1973
	Hibbard, Maurice (Falconbridge Nickel Mines Ltd. option) also Marriott Tp.	Mag (1" = 200') with rept by J.A.Kelly, Oct. 1973
	McIntyre Porcupine Mines Ltd. also Ben Nevis & Tannahill Tp.	Mag, EM (1" = 200') Oct. 1973 & rept. by A. Skrecky, Dec. 1973
Eby	Hurd, Donald F.	rTr sketch, Jul.-Sep. 1974
	Noranda Exploration Co. Ltd. "1.71, 2-71 & 3.71"	Gc (1" = 400') (2), geol (1" = 400') & rept. by W.F.Graham, Jun.1974
English	Dome Mining Co. Ltd. "Matachewan Prospect" "Clayton, R. H.; DesRosiers, David F. claims" also Semple Tp.	DH 2 Sep. 1974 & loc.(1" = 1320'), Oct. 1974
	Granges Exploration (Canada) AB also Bartlett, Geikie, Halliday, Hincks, Hutt, Montrose, Semple, Sothman & Zavitz Tp.	see under Bartlett Tp.
Flavelle	Ecstall Mining Limited also Cairo	see under Cairo Tp.
	Walsh, George S.	rTr sketch, Aug. 1974
Frechette	Tri-Bridge Consolidated Gold Mines Ltd.	prospectus, Oct. 1973
	Fairview Mining Inc.	corresp Oct. 1973, Jan.& Jul. 1974; loc.(1" = 25 ml, 1" = 2640'), geol (1" = ¼ ml.) & rept. by H. Grant Harper, Mag, E-M (1" = ½ ml.) & rept by H. Grant Harper, Jan. 1974
Garrison	Canadian Johns-Manville Co. Ltd.	DH (2) H-74-1, Feb. 1974 & loc.(1" = 100') Feb. 1974; plan for geol, profiles & DH combined (2) (1" = 200') Feb. 1974 (Deadhorse Creek Group, Harker Tp.) EM profiles (3) (1" = 400'), Feb. 1974; rept by F. J. Evelegh for all groups, Feb. 1974
	Garrcon Mines Ltd. "McKenzie option" (see also Consolidated Mining & Smelting Co. of Canada)	geol compilation (1" = 400') Apr. 1947
Gauthier	McCullough, Edward William also McVittie Tp.	sTr & rTr sketches, May-Jul. 1973
	Upper Canada Resources Ltd. (formerly Upper Canada Mines Ltd.) also McVittie Tp.	see under McVittie Tp.

Township	Name of property file	Kind of data
Gillies Limit	Murgor Explorations Ltd.	prospectus Oct. 1973
	Home, K. P.	sTr sketch, May 1974
	Silver Monarch Mines Ltd.	prospectus, Oct. 1973
	McGarry, John; Robinson, Dale	DH U-2, U-3, Aug.-Sep. 1974 & loc.(1" = 400'), assays Sep. 1974
Grenfell	Cooper, Wilfred	sTr sketch Jun. 1973; Jun. 1974
Guibord	Tagliamonte, Frank; Fedora, John A. also Cook Tp.	see under Cook Tp.
	New Kelore Mines Ltd. (Kelore Mines Ltd.) (see also Kelwren Gold Mines Ltd.; Bush, V.) also Hislop Tp.	see under Hislop Tp.
	Norancon Explor. Ltd.	Mag, Em (2) (1" = 400') & rept. by W. E. Lunt, May 1974
Halliday	Lerche, J.; Rousseau, A. (optioned by Canadian Arrow Mines Ltd.; Glen Copper Mines Ltd.; Newmont Mining Corp. of Canada Ltd.) also Midlothian Tp.	EM (1" = 400') May 1973 & rept. by E. J. Ballantyne Oct. 1973; geol (1" = 400') with rept. by David Watkins, Sep. 1973; Mag (1" = 400') with rept. by E. J. Ballantyne, Jan. 1974
	Salo, Arvo	geol (1" = 400'), loc.(1" = ½ mi.) & rept. by K. H. Darke, Sep. 1973; Mag (1" = 200') & rept by K. H. Darke, Aug. 1973; geol (1" = 400'), rTr sketch & assay results Jul.-Aug. 1974
	DesRosiers, David F.	Mag, EM (3) (1" = 100') & repts by R. H. Clayton, Feb. 1974, Mar. 1974
	Dome Mining Co. Ltd. "Clayton, R. H.; DesRosiers, David F. claims"	DH 1, Aug. 1974 & loc.(1" = 1320') Oct. 1974; Mag, EM (3) (1" = 200') & repts. by R. H. Clayton, Feb., Mar. 1974
	Granges Exploration (Canada) AB also Bartlett, English, Geikie, Hincks, Hutt, Montrose, Semple, Sothman & Zavitz Tp.	see under Bartlett Tp.
Harker	Anatole Resources Ltd. (see also Sciminex Ltd.)	Geol rept. by L. J. Cunningham, Aug. 1973 & loc.(1" = 2000'), Sep. 1973; assay results Jun. 1973; XH's (1" = 100'), Jun. 1973 (2)
	Canadian Johns-Manville Co. Ltd. "McVeigh option" "Potter Group" & "Deadhorse Creek Group" also Harker, Munro & Warden Tp.	see under Garrison Tp.
Hearst	Campbell, Duncan M.	rTr sketch, May-Oct. 1973
	Lowe, D.	rTr sketch, May 1974
	MacGregor, R. A. also Catherine, McElroy & McVittie Tp.	see under Catherine Tp.
	Robbins, C. D. (Quoddy Investment Co.) (Kerr Addison Mines Ltd. option)	DH RL 1 to RL 10, Sep.-Nov. 1973; XH's (13) (1" = 50'), Jul. 1973; geol (2) (1" = 200') & repts. by G. J. Hinse & D. R. Hendrick, Nov. & Dec. 1973 & geol (2) (1" = 50') Jul. Oct. 1973
	Sudbury Contact Mines Ltd.	DH 74-1 to 74-4, Jun. Jul. 1974 & loc (1" = 100')
	Lowe, D. (Vitro Minerals option; Stairs Explor. and M'g. Co. Ltd. proposed option; i.e. Amax Explor., Inc.	see under McElroy Tp.
Hepburn	Noranda Exploration Co. Ltd. also Sergeant Tp.	Mag, EM (1" = 40') & rept. by W. F. Graham, Nov. 1973

Township	Name of property file	Kind of data
Hincks	Sunisloe, George	aTr sketch, Jul-Aug. 1973
	Pan-Ore Gold Mines Ltd. also Zavitz Tp.	geol (1" = 200') (2) & rept. by R. L. Halladay Nov. 1973; IP (3) (1" = 200'), Jan. 1974, IP (1" = 400'), Jan. 1974 & rept. by Jagodits, Feb. 1974
	Prestige Mines Ltd. "Sokoloff, T. claims"	prospectus, Dec. 1973; Geol (1" = 200'), geol north vein (1" = 20'), geol South vein (1" = 50') & rept by J. D. McCannell, Jun. 1974; EM (1" = 200') & rept. by J. D. McCannell, Apr. 1974; DH P-1 to P-4, Jun.-Aug. 1974; XN's (1" = 20') Jul.-Aug. 1974; loc (1" = 200') Aug. 1974
	Granges Exploration (Canada) AB Bartlett, English, Geikie, Halliday, Hutt, Montrose, Semple, Sothman & Zavitz Tp.	see under Bartlett
Hislop	Nevada Explorations Ltd.	Prospectus, Oct. 1973; DH 74-18, 74-21 - 74-23, Jul. 1974 & loc.(1" = 50')
	Young-Davidson Mines Ltd.	Mag (1" = 100') & rept. by L. G. Hobbs, Dec. 1973
	Canadian Johns-Manville Co. Ltd. also Beatty Tp	(Hislop & Beatty) assay results, Apr.-Oct. 1972; loc plan (1" = 1000'), geol, Gb (1" = 50'), Gb (6) (1" = 400'), GB sample loc.plan (3) (1" = 400'), EM, Gc & geol (3) (1" = 50'), EM (2) (1" = 400'), EM, Gc & geol (1" = 50') (all Feb. 1973, prop plan (1" = 1000'), Jun. 1973, repts (2) by P. A. R. Brown; F. J. Evelegh, Feb. 1973
	Gunnex Ltd.	DH plan (1" = 50'); XN's (1" = 50') (11) (no date)
	New Kelore Mines Ltd. (Kelore Mines Ltd.) (see also Kelwren Gold Mines Ltd.; Bush, V.)	corresp Apr. 1973; prospectus (also includes Argyle property), Jan. 1974
	Hollinger Mines Ltd. "Hislop #1 Group"	Mag (1" = 200') (2) & rept. by H. Z. Tittley, Jul. 1974
Hudson	Armstrong, Roy	rTr sketch Sep. 1974
Hurtubise	Dome Exploration (Canada) Ltd. also Bradette & Noseworthy Tp.	see under Bradette Tp.
Hutt	Granges Exploration (Canada) AB also Bartlett, English, Geikie, Halliday, Hincks, Montrose, Semple, Sothman & Zavitz Tp.	see under Bartlett Tp.
James	Corrider Mines Ltd. (NRG Resources Inc.) "King, H.; Welsh, G. S. claims" also Smyth, Truax, Tudhope Tp.	
	Majestic Construction Ltd.	DH 1 & 2, Nov. 1973; brief rept. by J. G. Willars, Nov. 1973
Katrine	Welsh-Katrine Gold Mines Ltd. (Wedge Mines; Baghdad Gold Mines; Mid-North Engineering Services Ltd. also Ossian Tp.	prospectuses 1924, 1925, 1926, 1927, 1928, 1929
	Mid-North Engineering Services Ltd. (see also Welsh-Katrine Gold Mines Ltd.) also Ossian Tp.	Mag, EM (1" = 200') Feb. 1974 & rept. by P. J. Vamos, Feb. 1974
	Amax Exploration, Inc. also Ben Nevis & Pontiac Tp.	see under Ben Nevis Tp.
Knight	Decker, Albert	sTr sketch Nov. 1973; Jun.-Jul. 1974
Lebel	Delaye, Ernest C. (in part Hess-Warner Mining Ltd. option)	sTr sketch, Jun.-Jul. 1973; sTr sketch, Jul.-Aug. 1974
	Tuominen, Toivo J.	rTr sketch, Aug.-Sep. 1973
	Martin, Thos.; Lalonde, Jos. (see also Kirkroyale Gold Mines Ltd.)	DH 1, Aug.-Sep. 1974 loc.(no scale); sTr sketch Aug.-Sep 1974

Township	Name of property file	Kind of data
Leonard	United Reef Petroleums Ltd.	Gc (1" = 200') & rept by J. L. Tindale, Dec. 1973; geol (1" = 200'), Jan. 1974 & rept by J. L. Tindale, Jan. 1974
	McGill, Kenneth E.	sTr Aug.-Oct. 1973; Aug. 1974
	Waddington, G. E.	Mag (2) (1" = 400') & rept. by G. E. Waddington, May 1974
Lorrain	Aggressive Mines Ltd. "J-B property" (Falconbridge Nickel Mines Ltd. property) also South Lorrain Tp.	rept. by R. I. Benner, May 1973
	McCullough, Edward William	DH 1, Jul. 1974 & loc.(1" = 20')
Maisonville	Ecstall Mining Ltd.	Mag, EM (1" = 200') Aug. 1974 & rept. by J. A. Slankis Sep 1974
Marriott	Falconbridge Nickel Mines Ltd.	DH 73-1 - 73-4, loc (1" = 100') Nov.-Dec. 1973
	Capconda Mines Ltd.	prospectus, Jun. 1973
	Hibbard, Maurice (Falconbridge Nickel Mines Ltd. option) also Dokis Tp.	see under Dokis Tp.
[illegible]	Hard Fault Copper Ltd. (Sullivan, T; Tamminen, T. V.; Tagliamonte, F. P.; Mathies, Alex	EM, Mag (2) (1" = ¼ mi.) with rept. by D. C. Fraser Oct. 1973; Mag, EM (1" = 200') Nov. 1972 & rept. by F. P. Tagliamonte, Jan. 1973; DH HF74-1 to HF74-5; loc & XN's, Jun.-Jul. 1974;
	Cooper, Wilfred	sTr sketch Jul. Sep. 1974
Mickle	King, Henry	sTr sketch, May 1973
	Welsh, George S.	rTr sketch, May 1974
Midlothian	Larche, J. & Rousseau, A. (optioned by Canadian Arrow Mines Ltd.; Glen Copper Mines Ltd.; Newmont Mining Corp. of Canada Ltd.) also Halliday Tp.	see under Halliday Tp.
	Kolezar, George (optioned by Newmont Mining Corp. of Canada Ltd.)	Mag (1" = 400') with rept. by E. J. Ballantyne, Jan. 1974
	United Asbestos Inc.	DH 511 to 513, Nov. 1973 & locations (1" = 30') Mar. 1974; DH S-1 to S-4, Jun.-Jul. 1972 & loc.(1" = 400') Aug. 1974
	Larche, J. (The Hanna Mining Co.)	Mag (1" = 200') Nov. 1973 & rept by N. Hogg, Nov. 1973; Mag (1" = 200') (2), Jan. 1974; EM (2) (1" = 200'), Nov. 1973 & rept by N. Hogg, Nov. 1973; EM (1" = 200') (2) Jan. 1974; geol (2) (1" = 200') & rept by N. Hogg, Nov. 1973; EM (1" = 200') & rept. by J. A. Woodard, Jan. 1974; geol (1" = 200') (19), mag (1" = 200') (9), EM (1" = 200') (9) & repts by B. L. Hodgins Jan. 1974
	Northim Mines Inc. "Collins, D. property"	EM, Mag (1" = 200') & rept.by K. H. Darke, Feb. 1974
Milner	Decker, Albert	rTr sketches May, Jun., Sep. 1974
Montrose	Golden Bounty Mining Co. Ltd.	rept. by J. D. McConnell, Nov. 1973; prospectus, Dec. 1973; EM (1" = 200') & rept. by J. D. McConnell, Apr. 1974; geol (1" = 200') & rept. by J. D. McConnell, Aug. 1974
	Granges Exploration (Canada) AB also Bartlett, English, Geikie, Halliday, Hincks, Natt, Semple, Sothman, Zavitz Tp.	see under Bartlett Tp.
Morrisette	Deloye, Ernest C. (in part Hamm-Warner Mining Ltd. option) also Bernhardt Tp.	see under Bernhardt Tp.
	Cherzepa, Emil	

Township	Name of property file	Kind of data
Mortimer	Noranda Exploration Co. Ltd.	Mag, EM (1" = 40') & rept. by W. F. Graham, Nov. 1973
Munro	Hurd, Donald F.	rTr sketch, Jul. Aug., Oct. 1973
	Canadian Johns-Manville Co. Ltd. "McVeigh option" "Potter Group" "Deadhorse Creek Group" also Harker, Warden & Garrison Tp.	see under Garrison Tp.
	Lee Geo-Indicators Ltd. (also McCool Tp.	see also under McCool Tp. sTr sketch Jul. 1974; soil Gc Sep. 1974; loc.(1" = 400') Sep 1974; geol (1" = 400') Oct 1974; rept. by S. A. Scott, Jul. 1974
	Carlson, Hugh D.	Mag (1" = 400') & rept. by H. D. Carlson, Aug. 1974
McCool	Lee Geo-Indicators Ltd.	EM (2) (1" = 200') with rept. by Karl Glackmeyer, Dec. 1973
	Bonnacord Explorations Ltd. (Gunnex Ltd.; Alexander Red Lake Mines Ltd.)	EM (1" = 200') & rept. by M. J. Moreau, Jul. 1973
McElroy	MacGregor, R. A. also Catherine, Hearst & McVittie Tp.	see under Catherine Tp.
	Lowe, D. (Vitro Minerals option; Stairs Explor. and M'g. Co. Ltd. i.e. Amax Explor., Inc. option) also Hearst Tp.	rTr sketch (1" = 400'), Apr.-Oct. 1973; Feb.-May 1974
McGarry	Walker, James	DH5, 6, Jul. 1974
McVittie	Kasner, Robert "Kasner-Hurd claims"	rTr sketch, Nov. 1973-Jan. 1974
	Bustreen, Michel	rTr sketch, Sep-Nov. 1973; DH 11 - 13 & locations, Jul.-Oct. 1974
	Hennis, Thomas Charles	sTr sketch, Jul-Aug. 1973
	McCullough, Edward William also Gauthier Tp.	see under Gauthier Tp.
	Bustreen, Remi	rTr sketch, Aug.-Sep. 1973
	MacGregor, R. A. also Catherine, Hearst, McElroy Tp.	see under Catherine Tp.
	Upper Canada Resources Ltd. (formerly Upper Canada Mines Ltd.) also Gauthier Tp.	EM (2), Mag (2) (1" = 200'), Feb. 1974 & rept. by R. K. Watson, Feb. 1974
	Smith, Lyman	rTr sketch, May-Jun. 1972
	Sudbury Contact Mines, Ltd.	see under Hearst Tp.
Noseworthy	Dome Exploration (Canada) Ltd. also Bradette & Hurtubise Tp.	see under Bradette Tp.
	Dome Mining Co. Ltd. "Edlestone Lake property" "Clayton, R. H.; DesRosiers, David F.; Armand, Aubé claims" also Sothman Tp.	DH 3, Sep.1974 & loc. (1" = 1320') Oct. 1974
Ossian	Walsh-Katrine Gold Mines Ltd. (Wedge Mines; Baghdad Gold Mines; Mid-North Engineering Services Ltd.) also Katrine Tp.	see under Katrine Tp.
	Mid-North Engineering Services Ltd.) also Katrine Tp. (see also Walsh-Katrine Gold Mines Ltd.	see under Katrine Tp.

Township	Name of property file	Kind of data
Otto	Gateford Mines, Ltd. (see also Kirkland Golden Gate Mines Ltd.; Kirkland Gateway Mines Ltd.; Crescent Kirkland Gold Mines Ltd.; Golden Gate Mining Ltd.; Gateway Gold Mines Ltd.; Swastika Mines Ltd.; Lucky Cross Gold Mines Ltd.; Lucky Cross Leasing Syndicate) also Tech Tp.	Composite map (1" = 100'), geol (no scale), loc.(1" = 1320') & rept. by H. G. Harper, Mar. 1974
	Hamelin, Henry	sTr sketch, Jun.-Oct. 1973
	Laskowski, Hans	rTr sketch, Jul.-Aug. 1973
Playfair	Canadian Arrow Mines Ltd.	Mag EM (1" = 200') & rept. by S. S. Szetu
	Gray, Mansfield	sTr sketch, Oct.-Nov. 1973; DH 1 & 2, loc.(1" = 500') Jun. 1974
Pontiac	Hellens, A. D. (Silverneque Mining Ltd. option)	EM, Mag (1" = 400') with rept. by H. J. Bergmann, Apr. 1973
	Amax Exploration, Inc. also Ben Nevis & Katrine Tp.	see under Ben Nevis Tp.
Powell	Gold Acres Mines Ltd.	prospectus, Oct. 1973
	Carlton Explorations Ltd.	geol (1" = 200') with rept. by J. D. McCannell, Oct. 1973
	Welsh, George Stanley	rTr sketches, Sep.-Oct. 1973; corr. J. G. Willars, Feb. 1974
	British Matachewan Gold Mines Ltd.	rTr sketch, Sep.-Oct. 1973
	Welsh, George Stanley (Majestic Construction Ltd. option)	DH 2, Nov. 1970; percussion drilling & trenching (1" = 20') (?); percussion drilling with results; DH 1 to 9, Oct.-Nov. 1973; geol (1" = 200') EM (1" = 200') & rept. by J. G. Willars, Nov. 1973; rTr sketch Sep.-Oct. 1974
	Byles, George	rTr sketch Aug.-Sep. 1974
	Garbutt, Fred J.	Gc (1" = 100') & rept. by F. J. Garbutt, Jul. 1974; Mag (1" = 100'), location (1" = ½ mi.) & rept. by L. J. Cunningham, Jul. 1974; Mag (1" = 100') & rept. by F. J. Garbutt, Jun. 1974
Rand	Canadian Johns-Manville Co. Ltd. "Warden Hill, Stairs, Potter; Camp Creek; Zinc Group; Lyden Group" (see also Abitibi Zinc Project) also Munro, Rand & Warden Tp.	DH RJ-74-1, May-Jun. 1974, XS (1" = 50') Sep. 1974, location (1" = 1320'),
Richard	Abitibi Paper Co. Ltd. also Coulson Tp.	see under Coulson Tp.
	Texasgulf, Inc.	DH R-65-1 & R-66-1, Feb.-Mar. 1973 & loc.(1" = 400'), Feb. 1974; Mag, EM (2) (1" = 200') Apr. 1972 & repts by J. A. Slankis, May 1972; Mag, EM (1" = 200'), May 1972 & rept by J. A. Slankis, May 1972
	Ecstall Mining Ltd.	Mag, EM (1" = 200'), Mar. 1974 & rept. by J. A. Slankis, Jun. 1974
Sargeant	Noranda Exploration Co. Ltd. also Hepburn Tp.	Mag, EM (1" = 40') & rept. by W. F. Graham, Nov. 1973
Semple	Dome Mining Co. Ltd. "Matachewan Project" "Clayton, R. H.; DesRosiers, David F. claims" also English Tp.	see under English Tp.
	Granges Exploration (Canada) AB also Bartlett, English, Geikie, Halliday, Hincks, Huff, Montrose, Sothman & Zavitz Tp.	see under Bartlett Tp.

Township	Name of property file	Kind of data
Skead	Buechner, O. Joachim	rTr sketch, Jun.-Jul. 1973
	Kazdan, Anton	rTr sketch, May 1974; sTr sketch, May, Aug. 1974
	MacGregor, R. A. (Selco Mining Corp. Ltd. option) also Catharine Tp.	EM (2) (1" = 200'), Feb. 1974 & rept. by R. A. MacGregor, Feb. 1974; Mag (1" = 200') & rept. by R. A. MacGregor Apr. 1974; sTr sketch Aug. 1974; EM (1" = 200') (2) and rept. by R. A. MacGregor, Jun. 1974; Mag (1" = 200') Feb. 1974 & rept. by R. A. MacGregor May 1974
Smyth	Corridor Mines Ltd. (NRG Resources Inc.) "King, H.; Welsh, G. S. claims" also James, Truax, Tudhope Tp.	see under James Tp.
Sothman	Ecstall Mining Limited	EM, Mag (1" = 200'), Jun. 1973 & rept. by J. A. Slankis, Apr. 1974; EM, Mag (1" = 200'), Jul. 1973 & rept. by J. A. Slankis, Apr. 1974
	Dome Mining Co. Ltd. "Edlestone Lake property" "Clayton, R. H.; DesRosiers, David F.; Armand, Aubé claims" also Nursey Tp.	DH 4, Sep. 1974 & loc (1" = 1320') Oct. 1974
	Granges Exploration (Canada) AB also Bartlett, English, Geikie, Halliday, Hincks, Hutt, Montrose, Semple, Zavitz Tp.	see under Bartlett Tp.
South Lorrain	Aggressive Mines Ltd. "J-B property" (Falconbridge Nickel Mines Ltd. property) also Lorrain Tp.	see under Lorrain Tp.
	Keeley-Frontier Mines Ltd. (Agnico-Eagle Mines Ltd.; see also Canadian Keeley Mines Ltd.; Keeley Extension Mines Ltd.)	Ug DH 1-1, 1-2, 4-1 to 4-6, F5-1 to F5-17, K6-1 to K6-10 & loc (Jan.-May 1972) (Frontier Shaft)
	Price, James H.	DH 74-1, loc, Sep. 1974
	Aurum Gold Mines Ltd.	Mag (1" = 200') (no date)
Steele	Dew Mines Ltd.	rTr sketches Apr.-Aug. 1974
Tannahill	McIntyre Porcupine Mines Ltd. also Dokis & Ben Nevis Tp.	see under Ben Nevis
Teck	Hurd, Donald F.	rTr sketch, Jul. 1973-Jan. 1974
	Lake Shore Mines Ltd.	brief rept. by J. H. Botsford, Mar. 1973
	Gateford Mines Ltd. (see also Kirkland Golden Gate Mines Ltd.; Crescent Kirkland Gold Mines Ltd.; Golden Gate Mining Ltd.; Kirkland Gateway Mines Ltd.; Gateway Gold Mines Ltd.; Swastika Mines Ltd.; Lucky Cross Gold Mines Ltd.; Lucky Cross Leasing Syndicate)	see under Otto Tp.
	Deloye, Ernest C. (in part Moss-Warner Mining Ltd. option)	sTr sketch, Jun. 1974; sTr sketch, Jul.-Aug. 1974
	Spark Gold Mines Ltd. "Welsh claims"	rTr sketch Aug. 1974
	Kerr Addison Mines Ltd. "Duffy, Dennis claims"	geol (1" = 50'), Sep. 1974; assay results May-Aug. 1974 (Kerr Addison option); sTr sketch May-Oct. 1974

Township	Name of property file	Kind of data
Teck	Mid-North Engineering Services Ltd.	DH 674-3 Sep. 1974, loc (1" = 200')
	S.I.S. Resources Corp. (see also Continental Kirkland Mines Ltd. & Continental Mines Ltd.)	literature Oct. 1974
	Lynx Canada Ltd. "Winnie Lake prospect" "Hurd, D. F. claims"	Mag, EM, Gc, loc.(1" = 100') & rept. by V. C. Papertzian, Dec. 1973
Truax	Corridor Mines Ltd. (NRG Resources Inc.) "King, H.; Welsh, G. S. claims" also James, Smyth, Tudhope Tp.	see under James Tp.
Tudhope	Corridor Mines Ltd. (NRG Resources Inc.) "King, H.; Welsh, G. S. claims" also James, Smyth, Truax Tp.	see under James Tp.
Tyrrell	Sokoloff, T.	DH BR-1 to BR-3, loc. (1" = 200') Sep.-Oct. 1973
	Rey Roc Mining Co. Ltd.	combined EM & Mag (1" = 400') with rept. by J. D. McCannell, Aug. 1973; corresp. Jan. 1974; rept. by J. D. McCannell, May 1973; DH BR-1 to BR-3, loc. (1" = 200'); Assays, Dec. 1973
	Saville, Stewart	rTr sketch, Dec. 1973
	Sloane Mining Co. Ltd. "Sokoloff, T. claims"	DH BR-1 to BR-3, loc. (1" = 200') Sep.-Oct. 1973; EM, Mag (2) (1" = 200') & repts. by J. D. McCannell, Jan. 1974
	Pope, Alex R.	rTr sketch, Jun. 1974
	Matona Gold Mines Ltd.	rept. by F. P. Tagliamonte Aug. 1958; corresp. between W. B. McPherson & J. W. Baker, Jan. Jun. 1958
Warden	Canadian Johns-Manville Co. Ltd. "Warden Hill; Stairs; Potter; Camp Creek; Zinc Group; Lyden Group" also Bompas, Munro, Rand Tp.	DH P-73-2, Dec. 1973, DH P-74-1, May 1974; loc. (1" = 50'), May 1974; DH plan (1" = 1000'), May 1974
	Canadian Johns-Manville Co. Ltd. "McVeigh option" "Potter Group" "Deadhorse Creek Group" also Garrison, Harker & Munro Tp.	see under Garrison Tp.
Wesley	Ecstall Mining Ltd.	Mag & EM (1" = 200'), Feb. 1974 & rept. by J. A. Siemkis, Jun. 1974
Zavitz	Pan-Ore Gold Mines Ltd. also Hincks Tp.	see under Hincks Tp.
	Rousseau, Robert	see under Hincks Tp.
	Grangex Exploration (Canada) AB also Bartlett, English, Geikie, Holliday, Hincks, Hutt, Montrose, Semple & Sothman Tp.	see under Bartlett Tp.

1974 REPORT
of the
NORTHEASTERN REGIONAL GEOLOGIST
and
SAULT STE. MARIE RESIDENT GEOLOGIST

by

P.E. Giblin

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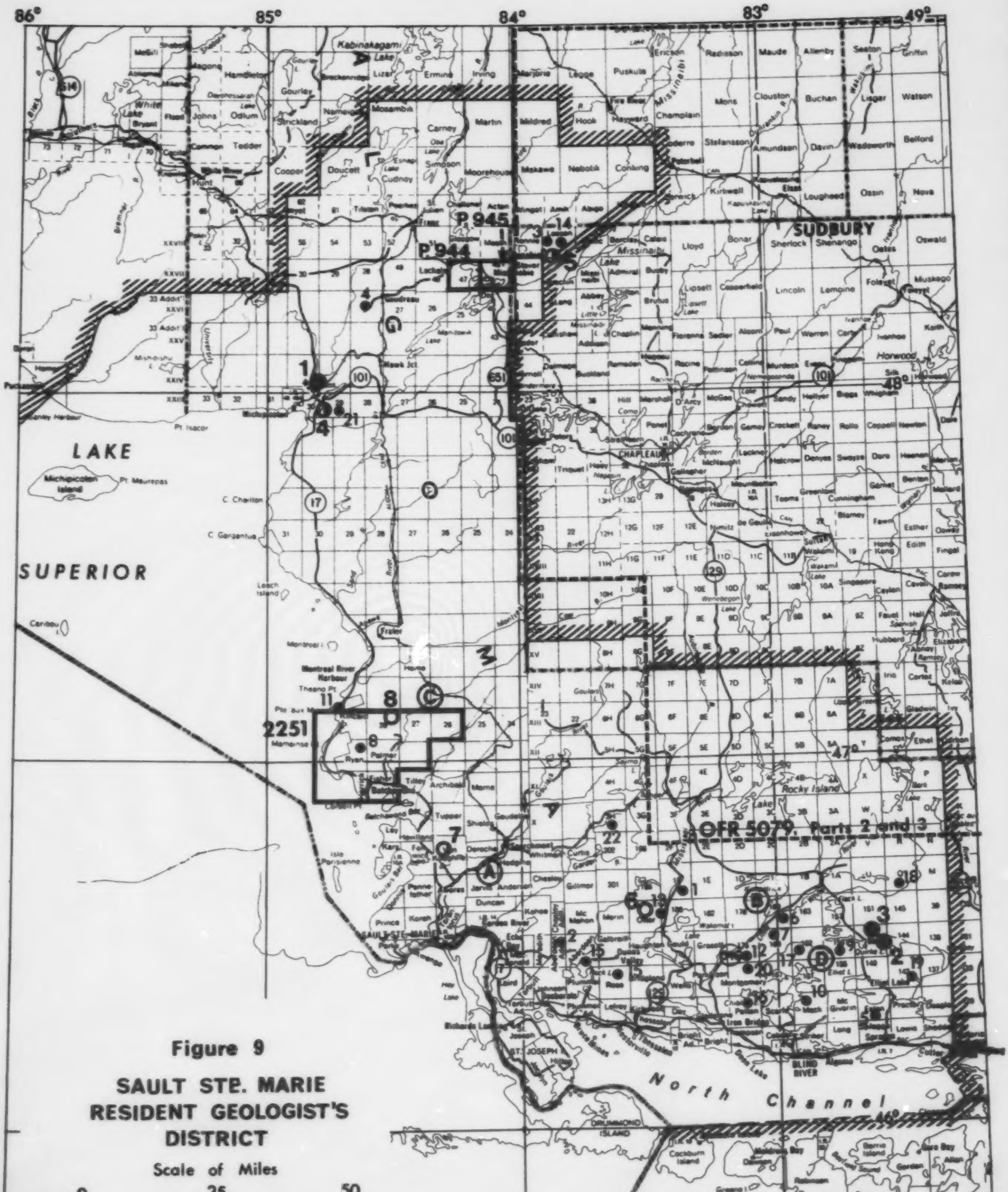
86°
85°
84°
83°
49°
48°
47°
LAKE
SUPERIOR
SUDBURY
CHAPLEAU
SAULT STE. MARIE
North Channel
P 945
P 944
2251
OFR 5079, Parts 2 and 3
Michipicoten Island
ST. JOSEPH
DRUMMOND ISLAND
MANITOULIN
BLIND RIVER

Figure 9

SAULT STE. MARIE RESIDENT GEOLOGIST'S DISTRICT

Scale of Miles

0 25 50

Index to Figure 9

●	Producing Mines
	1. The Algoma Steel Corp. Ltd.-Algoma Ore Division 2. Denison Mines Ltd. 3. Rio Algom Mines Ltd.
◑	Mines Under Development
	4. Pursides Gold Mines Ltd. 5. Rengold Mines Ltd.
○	Mines Terminating Operation
	6. W.J. Doughty (McKee Copper Inc.) 7. Prace Mining Ltd. 8. Tribag Mining Co. Ltd.
•	Exploration Activity in 1974 (keyed to Table 18)
Ⓐ	Location of Geological Branch Field Party, 1974
——— - - - - -	New Maps and(or) Reports (ODM) with Number P - Preliminary Map OFR - Open File Report 2251 - Coloured Geological Map
▨	Boundary of Resident Geologist's District

1974 REPORT
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by

P.E. Giblin[1]

INTRODUCTION: Exploration activity continued at a relatively low level during 1974, and was chiefly directed towards evaluation of long-known gold deposits in the Wawa-Goudreau-Renabie area and a modest amount of exploration for new uranium deposits west of Elliot Lake. Minor base-metal prospecting programs were carried out in the Wawa, Batchawana-Montreal River, and Searchmont areas.

Staff in the Sault Ste. Marie office consists of G. Nivins (Secretary), E.J. Leahy (Geological Assistant), G. Bennett (Geologist, Precambrian Geology Section, Geological Branch), and the writer. R.J. Rupert, former Resident Geologist, resigned during the year. In September, the office was moved from 370 Lake Street and consolidated with the new Regional Office of the Ministry of Natural Resources at 390 Bay Street. The new mailing address is Box 1900, Sault Ste. Marie, Ontario, P6A 5N9.

REGIONAL GEOLOGISTS' ACTIVITIES: Several prospects were examined and some of the operating mines were visited. Mapping was carried out in Aweres Township, immediately north of Sault Ste. Marie, by E.J. Leahy and the writer.

Revision of the Sault Ste. Marie-Elliot Lake geological compilation map (Giblin and Leahy 1967) is in progress. Several land-use studies were carried out for the Ministry. Compilations of drill hole data related to uranium exploration in the Elliot Lake-Sault Ste. Marie area, and the urban geology of Sault Ste. Marie were started. The writer served as chairman of the 20th Annual Institute on Lake Superior Geology which was held in Sault Ste. Marie in May. A committee of local geologists, including G. Bennett and E.J. Leahy of the Ontario Division of Mines, assisted in organizing technical sessions and field trips for the Institute.

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[1] Regional Geologist, Ontario Ministry of Natural Resources, 390 Bay Street, Sault Ste. Marie, P6A 5N9.

GEOLOGICAL BRANCH ACTIVITIES: Three mapping projects were carried out in the Sault Ste. Marie Resident Geologist's district by geologists of the Precambrian Geology Section.

G. Bennett carried out mapping in the Jarvis Lake-Garden River area, located 15 miles (24 km) northeast of Sault Ste. Marie (A on Figure 9).

K.M. Siemiatkowska mapped the Endikai Lake area, located 30 miles (48 km) north of Iron Bridge (B on Figure 9).

G.M. Siragusa mapped the Batchawana-Pangis area, located 45 miles (72 km) north of Sault Ste. Marie (C on Figure 9).

Results of these surveys are briefly described by the party leaders in ODM publication MP59.

E.B. Freeman and R. Ross of the Geoservices Section presented lectures and conducted field trips at the Ministry's Junior Ranger camps.

L.G. Closs of the Geophysics/Geochemistry Section carried out a geochemical orientation survey of lake waters and lake sediments in the Elliot Lake area (D on Figure 9) (see also ODM publication MP59).

MINING AND DEVELOPMENT OPERATIONS: Denison Mines Limited and Rio Algom Mines Limited continued uranium production at Elliot Lake. The Algoma Steel Corporation Limited-Algoma Ore Division, continued iron ore production at Wawa. Operations were terminated at the Batchawana area copper mine of Tribag Mining Company Limited.

Prace Mining Limited carried out small-scale open-pit operations from May to December on a silver-lead deposit located in VanKoughnet Township, 20 miles (32 km) north of Sault Ste. Marie. Approximately 200 tons of hand-cobbed galena concentrate were shipped to Brunswick Mining and Smelting Corporation Limited, Bathurst, New Brunswick, for smelting and refining. The company plans to resume operations next spring.

The Prace deposit is located in the northeast quarter of Section 14, VanKoughnet Township, on claims S.S.M. 321431 and 321432. A narrow fracture zone cuts a Nipissing Diabase sill, strikes N60W, and dips 75W. The fracture is filled by quartz-carbonate vein material, which carries abundant argentiferous galena and traces of sphalerite, chalcopyrite, and pyrite. The vein ranges in width from a few inches to about 2 feet (0.6 m), and has been traced over a strike length of about 400 feet (122 m). A few, narrower, subparallel veins branch from the main vein.

W.J. Doughty of Karalash Corners, Ontario, conducted mining operations on the copper deposit of McKee Copper Incorporated located in Otter Township, 20 miles (32 km) north of Thessalon. An adit was driven, a small tonnage of hand-cobbed material was shipped to the Tribag mine for custom milling, and a stock-pile of hand-cobbed material was built up. Operations were suspended before year-end. The deposit was described by R.J. Rupert (1974, p.88-89).

Rengold Mines Limited acquired the former Renabie mine, which during its 23 year span of production, from 1947 to 1970, produced 3,600,000 tons of ore with an average grade of 0.23 ounces gold per ton. Rengold Mines Limited started dewatering the mine, and announced plans to have the property in production by mid-1975 at an initial mill rate of 300 tons per day, with an early increase to 500 tons per day. The company will mine a developed block of ore below the 2,625-foot (800 m) level, the former deepest working level. Ore reserves below this level were estimated as "upwards of 800,000 tons that should grade at least 0.23 oz." (i.e. ounces gold per ton) (The Northern Miner, September 5, 1974, p.1). An additional 359,828 tons with an average grade of 0.15 ounces gold per ton is present in pillars, low-grade stopes and unmined reserves on the upper levels (The Northern Miner, September 5, 1974, p.2).

Pursides Gold Mines Limited continued underground exploration and development on the company's Wawa area property, the former Surluga mine. Prior to this recent work, reserves were estimated at 1.5 to 2.0 million tons with an average grade of 0.15 to 0.18 ounces gold per ton (Canadian Mines Handbook, 1974-1975, p.275).

Silver Spring Mines Limited is rehabilitating the mill of the former Cannon mine, located 20 miles (32 km) north of Blind River. The company plans to mill copper ore from several nearby small copper deposits.

EXPLORATION ACTIVITIES: Exploration work consisted chiefly of evaluation of gold deposits in the Missanabie-Renabie area, the search for new uranium deposits west of Elliot Lake, and minor base-metal prospecting programs in the Wawa and Batchawana "greenstone" belts. Exploration activities are summarized in Table 18. Numbers in the table refer to locations shown on Figure 9.

NEW INFORMATION: New information received during the year consisted of exploration data submitted for assessment work credit, exploration data donated by companies and individuals, company prospectuses, maps and reports published by the Ontario Division of Mines, and papers published in scientific and technical journals. Areas covered by maps and reports published by the Ontario Division of Mines are shown on Figure 9.

ODM MAPS AND REPORTS ISSUED BY THE GEOLOGICAL BRANCH IN 1974:

P.944	Missanabie Area, Riggs Township (formerly Township 47), (42 C/8E), District of Algoma. Geology by P. Srivastava, G. Bennett and assistants, 1973, scale 1 inch to ¼ mile or 1:15,840.
P.945	Missanabie Area, West Township (formerly Township 46), (42 C/8E), District of Algoma. Geology by P. Srivastava, G. Bennett and assistants, 1973, scale 1 inch to ¼ mile or 1:15,840.
Map 2229	Index to Aeromagnetic Maps of Ontario, Revised 1974. Scale 1 inch to 30 miles or 1:1,900,800.
Map 2251	Batchawana, Algoma District (41 K/15, 41 K/16, 41 N/1, 41 N/2). Geology by P.E. Giblin, G.A. Armburst, and assistants, 1964-1968, scale 1 inch to 1 mile or 1:63,360.
Map 2310	Ontario Mineral Map, compilation by the Geological Branch, Ontario Division of Mines Revised 1974, scale 1 inch to 25 miles or 1:1,584,000.
MP57	Annual Report of Resident Geologists' Section, Geological Branch, 1973. Edited by C.R. Kustra, 192p., 22 figures, 17 tables.
MP59	Summary of Field Work, 1974, by the Geological Branch. Edited by V.G. Milne, D.F. Hewitt, and K.D. Card, 206p. plus various figures and key maps.
OFR5079 Part 2	Operation Chapleau (part only), Geology of the Chapleau Area, Districts of Algoma, Sudbury, and Cochrane, (41 J, 41 O, 42 B) by P.C. Thurston, G.M. Siragusa, and R.P. Sage; 248p., 17 figures, 23 tables, 31 photos (xerox copies) 4 maps.
OFR5079 Part 3	Operation Chapleau (part only), Economic Geology of the Chapleau Area, Districts of Algoma, Sudbury, and Cochrane, (41 J, 41 O, 42 B), by P.C. Thurston, G.M. Siragusa, and R.P. Sage, 422p., 15 figures, 13 tables, 21 photos (xerox copies) and 4 maps, scale 1 inch to 2 miles or 1:126,720.

OFR5103 Selective Retrieval from the Canadian Index to Geoscience Data on (1) Assessment Work (1972, 1973) Filed with the Ontario Division of Mines and (2) Reports Received under Ontario's Mineral Exploration Assistance Program (MEAP) by H.A. Groen.

OFR5104 Ontario Occurrences of Float, Placer Gold, Indicator Minerals for Kimberlite, etc., by S.A. Ferguson, 225p., 6 figures.

OFR5114 Mineral Exploration Assistance Program (MEAP), Fiscal Years 1971-72, 1972-73, and 1973-74 by S.A. Ferguson, E. Bayer and S.C. Sun, 1974, 70p.

OFR5117 Aggregate Resources Search - North Shores Lakes Superior and Huron Districts of Thunder Bay and Algoma, by Gartner Lee Associates Limited, 116p., 27 maps, scale 1 inch to 2 miles or 1:126,720, and one map, scale 1 inch to 16 miles or 1:1,013,760.

RECENT PUBLICATIONS AND REFERENCES:

Blecha, Matthew

1974: Batchawana Area - A Possible Precambrian Porphyry Copper District; CIM Bull., Vol.67, No. 748, August 1974, p.71-76.

Bennett, Gerald, and Rupert, R.J.

1974: The Michipicoten Greenstone Belt (Field Guide); p.117-149 in Prog., Abstr., Field Guides for 20th Ann. Inst. Lake Superior Geol., May 1974, Sault Ste. Marie, Ontario, edited by P.E. Giblin, Gerald Bennett, and E.J. Leahy, 149p.

Giblin, P.E.

1974: Middle Keweenawan Rocks of the Batchawana-Mamainse Point Area (Field Guide); p.39-67 in Prog. Abstr., Field Guides for 20th Ann. Inst. Lake Superior Geol., May 1974, Sault Ste. Marie, Ontario, edited by P.E. Giblin, Gerald Bennett, and E.J. Leahy, 149p.

Giblin, P.E., Bennett, Gerald, and Leahy, E.J. (editors)

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Table 18 Exploration Activity in 1974

The following is a list of individuals and companies known to be engaged in exploration within the Sault Ste. Marie Mining Division in 1974, and the type of work undertaken in each case. The numbers correspond to the numbered areas on Figure 9.

Company or Individual	Activities
1. Barcis, A.	Trenching on copper occurrence in Dagle Township (formerly Township 1F).
2. Cavalier Energy Inc.	Diamond drilling on copper occurrence, Aberdeen Additional Township.
3. Coniagas Mines Ltd., The	Diamond drilling, Leeson Township.
4. Ego Mines Ltd.	Diamond drilling and trenching on copper-gold prospects, Abotossaway Township (formerly Township 28, Range 26).
5. Esten Explorations Inc.	Diamond drilling on copper prospect, Esten Township.
6. Fort Norman Explorations Inc.	Trenching and diamond drilling on copper prospect in Albanel Township (formerly Township 169). Airborne magnetometer, resistivity, electro-magnetic, gamma-ray spectrometer surveys covering properties in 17 townships, Elliot Lake area. (Townships listed in table of assessment work).

	Company or Individual	Activities
7.	Garrelts, J. E.	Stripping and trenching on IP anomaly, Kamichisitit Township (formerly Township 168).
8.	Haugeneder, J.	SP survey on copper prospect, Ryan Township.
9.	Kerr-McGee Corporation	Diamond drilling, Beange Township (formerly Township 156).
10.	Kintu Uranium Ltd.	EM survey, Mack Township.
11.	MacGregor, R. A.	EM survey on copper occurrence, Slater Township (formerly Township 29, Range 14).
12.	Master Metals Corp. (Mining) Ltd.	Stripping on copper prospect (former Destorado prospect) in Nouvel Township (formerly Township 175).
13.	McKee Copper Inc.	Stripping and trenching, Casson Township (formerly Township 188), and Otter Township.
14.	Nudulama Mines Ltd.	Diamond drilling on gold deposit, Leeson Township.
15.	Paynter, R.	Diamond drilling, Aberdeen Township; trenching in Rose Township.
16.	Pellerin, U.	Trenching, Patton Township.
17.	Raylloyd Mines and Explorations Ltd.	Diamond drilling, Jogues Township (formerly Township 162).

	Company or Individual	Activities
18.	Rice, C. F.	Trenching and diamond drilling on copper prospect, Piche Township (formerly Township Q).
19.	Rio Tinto Canadian Exploration Ltd.	Diamond drilling, Joubin Township (formerly Township 143).
20.	Superior Northwest Incorporated	Airborne magnetometer, resistivity, electro-magnetic, gamma-ray spectrometer surveys, covering properties in Montgomery, Kamichisitit, and Nouvel Townships (latter two formerly Townships 168 and 175, respectively).
21.	Van Sickle, L. A.	Trenching, McMurray Township (formerly Township 29, Range 23).
22.	Warren, W. J.	Trenching, Jollineau Township (formerly Township 3H).

Table 19 Assessment Work and Other Information Received in 1974

Sault Ste. Marie Mining Division

Abbreviations

A - Airborne
AC - Work for Assessment Credit
D - Donated by Company or Individual
DDH - Diamond Drill Hole
EM - Electromagnetic Survey
GC - Geochemical Survey
GEOL - Geological Survey
MAG - Magnetometer Survey
RAD - Radiometric Survey
RES - Resistivity Survey
SP - Self Potential Survey

Township or Area	Ownership	Type of Data	Commodity Sought	Year Work Performed	File No.
Aberdeen	Paynter, R.	2 DDH (484') AC		1974	SSM-1751
Aberdeen Additional	Cavalier Energy Inc.	Prospectus; 3 DDH (524') AC	Cu	1974	SSM-1728
Abotossaway (28, Range 26)[1]	Ego Mines Ltd.	Trenching AC	Cu,Au	1974	SSM-700
Albanel (169)	Fort Norman Explorations Inc.	AEM, AMAG, ARAD, ARES; Trenching AC	Cu	1974	SSM-1739, 1763
	Stanford Mines Ltd.	Prospectus		1973	SSM-1633
Aweres	Tri-Bridge Mines Ltd.	Prospectus	Cu	1973	SSM-1573
Beange (156)	Fort Norman Explorations Inc.	AEM, AMAG, ARAD, ARES AC		1974	SSM-1763
	Kerr-McGee Corporation	1 DDH (200') AC	U	1974	SSM-1367
Bolger (155)	Fort Norman Explorations Inc.	AEM, AMAG, ARAD, ARES AC		1974	SSM-1763
Bouck (150)	Fort Norman Explorations Inc.	AEM, AMAG, ARAD, ARES AC		1974	SSM-1763
Bridgland	Fort Norman Explorations Inc.	AEM, AMAG, ARAD, ARES AC		1974	SSM-1763
Buckles (144)	Fort Norman Explorations Inc.	AEM, AMAG, ARAD, ARES AC		1974	SSM-1763
	North Briar Mines Ltd.	EM, MAG, RAD AC		1967	SSM-1075
Casson (188)	McKee Copper Inc.	Trenching AC	Cu	1974	SSM-1309
Corbiere (28, Range 25)	Peter Rock Mining Ltd.	20 DDH (4,534') D	Au,Ag,Cu	1965	SSM-977
Dagle (1F)	Barcis, A.	Trenching AC	Cu	1974	SSM-1131
Debassige (26, Range 25)	FMX Inc.	Prospectus	Cu	1973	SSM-1706
Esten	Esten Explorations Inc.	EM, MAG AC 6 DDH (1966') AC	Cu Cu	1973 1974	SSM-1680 SSM-1754
Finan (49)	Amax Exploration, Inc.	EM, MAG AC		1973	SSM-1727
Gaiashk (137)	Canuc Mines Ltd.	1 DDH (344') AC		1973	SSM-1150
Gould	Fort Norman Explorations Inc.	AEM, AMAG, ARAD, ARES AC		1974	SSM-1763
Grasett	Fort Norman Explorations Inc.	AEM, AMAG, ARAD, ARES AC		1974	SSM-1763
Haughton	Fort Norman Explorations Inc.	AEM, AMAG, ARAD, ARES AC		1974	SSM-1763
Jacobson (48)	Amax Exploration, Inc.	EM, MAG AC		1973	SSM-1727
Jogues (162)	Fort Norman Explorations Inc.	AEM, AMAG, ARAD, ARES AC		1974	SSM-1763
	Raylloyd Mines and Explorations Ltd.	2 DDH (8,250') AC AEM, AMAG AC	U	1973-74 1973	SSM-1356 SSM-1698

[1] Former township names given in brackets. Names changed March, 1974.

Township or Area	Ownership	Type of Data	Commodity Sought	Year Work Performed	File No.
Jogues (162)	Yellowknife Bear Mines Ltd.	MAG, GEOL, Trenching AC		1973	SSM-1699
Jollineau (3H)	Warren, H.	Trenching AC		1974	SSM-780
Joubin (143)	Rio Tinto Canadian Exploration Ltd.	1 DDH (1,605') AC	U	1974	SSM-813

Township or Area	Ownership	Type of Data	Commodity Sought	Year Work Performed	File No.
Kamichisitit (168)	Copper Prince Mines Ltd.	Prospectus	Cu	1973	SSM-451
	Garrelts, J. E.	Trenching AC		1974	SSM-1709
	Raylloyd Mines and Explorations Ltd.	AEM, AMAG AC		1973	SSM-1698
	Superior Northwest Inc.	AEM, AMAG, ARAD, ARES AC		1974	SSM-1757
Lastheels (28, Range 23)	Algoma Ore Properties Ltd.	22 DDH (11,429') D	Nb	1955-57	SSM-268
Leeson	Campbell, R.	Trenching AC		1973	SSM-1679
	Coniagas Mines Ltd., The	5 DDH (763') AC		1974	SSM-1726
	Nudulama Mines Ltd.	Report; Prospectus	Au	1974	SSM-1566
Lehman (138)	Fort Norman Explorations Inc.	AEM, AMAG, ARAD, ARES AC		1974	SSM-1763
Mack	Fort Norman Explorations Inc.	AEM, AMAG, ARAD, ARES AC		1974	SSM-1763
	Kintu Uranium Ltd.	Prospectus; EM AC		1974	SSM-1712
McMurray (29, Range 23)	Algoma Ore Properties Ltd.	DDH (see under Lastheels Township) D	Nb	1955-57	SSM-268
	Van Sickle, L. A.	Trenching AC	Au	1974	SSM-1129
Moggy (22, Range 16)	Asarco Exploration Co. of Canada Ltd.	AEM, AMAG AC		1973	SSM-1755
Moen (23, Range 16)	Asarco Exploration Co. of Canada Ltd.	AEM, AMAG AC		1973	SSM-1755
Montgomery	Superior Northwest Inc.	AEM, AMAG, ARAD, ARES AC		1974	SSM-1757
Naveau (29, Range 22)	McLean, P. J.	Trenching AC		1973	SSM-1700
Nebonaionquet (28, Range 22)	Palmgren, O.	Plan D	Au		SSM-1710
Nicholas (163)	Fort Norman Explorations Inc.	AEM, AMAG, ARAD, ARES AC		1974	SSM-1763
	Raylloyd Mines and Explorations Ltd.	AEM, AMAG AC		1973	SSM-1698
	Stanford Mines Ltd.	Prospectus		1973	SSM-1633
Nouvel (175)	Master Metals Corp. (Mining) Ltd.	Stripping AC	Cu	1974	SSM-1602
	Superior Northwest Inc.	AEM, AMAG, ARAD, ARES AC		1974	SSM-1757
Otter	McKee, R.	Trenching AC	Cu	1974	SSM-1309
Parkinson	Fort Norman Explorations Inc.	AEM, AMAG, ARAD, ARES AC		1974	SSM-1763
Patton	Pellerin, U.	Trenching AC		1974	SSM-1695
Piche (Q)	Rice, C. F.	Trenching, 2 DDH (210') AC	Cu	1974	SSM-1498
Point Isacor	Falconbridge Nickel Mines Ltd.	EM AC		1973	SSM-1568
Raimbault (157)	Fort Norman Explorations Inc.	AEM, AMAG, ARAD, ARES AC		1974	SSM-1763
Rennie	Campbell, R.	Trenching AC		1973	SSM-577
Riggs (47)	Amax Exploration, Inc.	EM, MAG AC		1973	SSM-1727
	Campbell, R.	Trenching AC		1973	SSM-1735
Rose	Paynter, R.	Trenching AC		1974	SSM-1495
Ryan	Haugeneder, J.	SP D		1974	SSM-684
	Sinclair, D. B.	3 DDH (202') AC		1973	SSM-1618
Sagard (1A)	Bye, C. E.	GC AC	Cu	1971-72	SSM-1636
Schembri (23, Range 15)	Asarco Exploration Co. of Canada Ltd.	AEM, AMAG AC		1973	SSM-1755
Slater (29, Range 14)	MacGregor, R. A.	EM AC	Cu	1974	SSM-1683
Timmermans (161)	Fort Norman Explorations Inc.	AEM, AMAG, ARAD, ARES AC		1974	SSM-1763
Viel (U)	Geophysical Engineering Ltd.	5 DDH (1,002') AC	Cu	1973	SSM-1721
Wells	Fort Norman Explorations Inc.	AEM, AMAG, ARAD, ARES AC		1974	SSM-1763

1974 REPORT
# of the
SUDBURY RESIDENT GEOLOGIST

by

D.G. Innes

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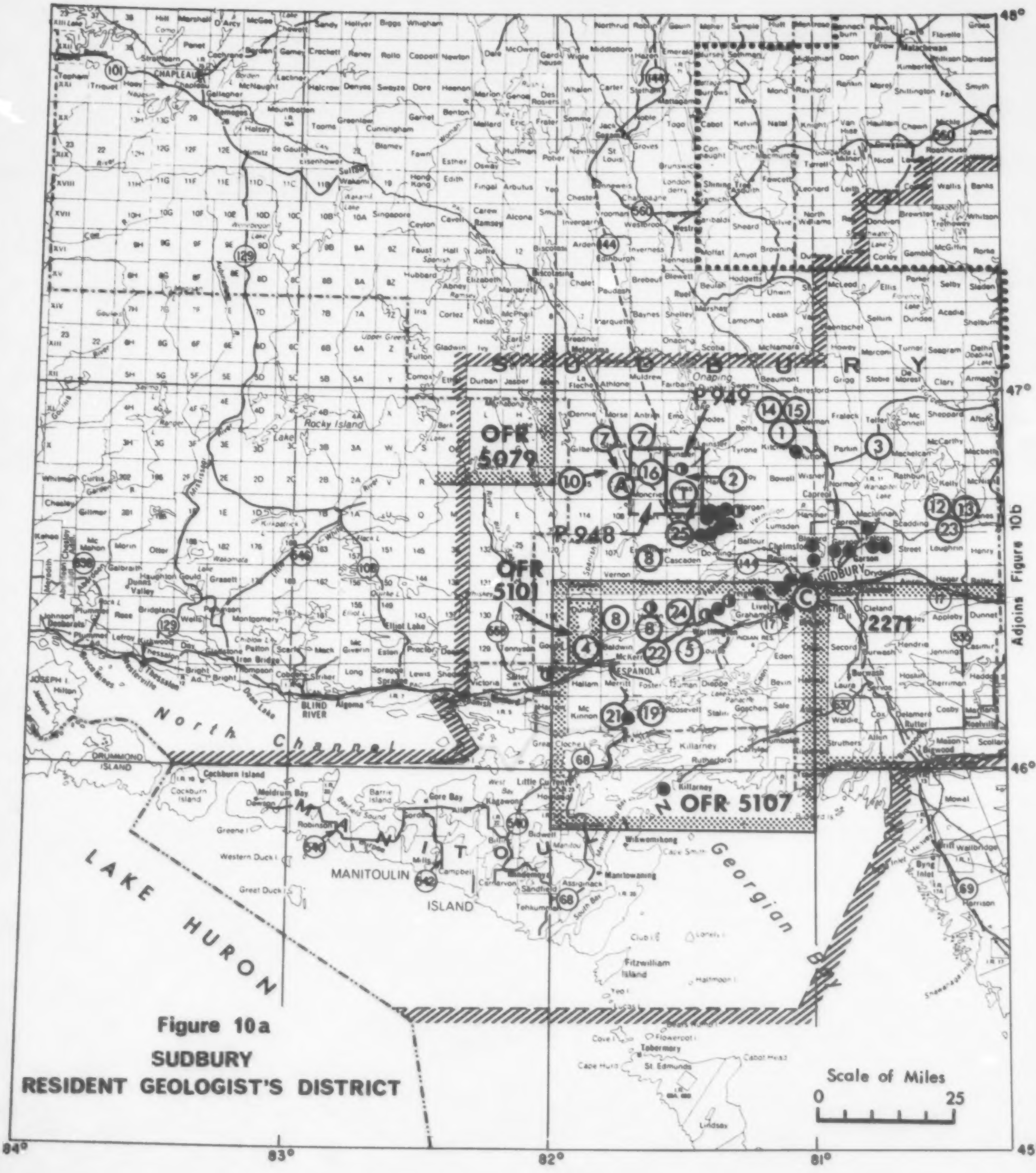
48°
47°
46°
45°
84°
83°
82°
81°
S U D B U R Y
OFR 5079
OFR 5101
OFR 5107
P 949
P 948
2271
SUDBURY
CHAPLEAU
ESPANOLA
BLIND RIVER
North Channel
LAKE HURON
Georgian Bay
M A N I T O U L I N
MANITOULIN ISLAND
Adjoins Figure 10b
Scale of Miles
0
25

Figure 10a

SUDBURY RESIDENT GEOLOGIST'S DISTRICT

EXPLANATION

● Producing mine

◐ Mine under development

⑨ Exploration activity in 1974, exclusing exploration on the Nickel Irruptive in vicinity of Sudbury (keyed to Table 21)

Ⓐ Location of Geological Branch Field Parties

New maps and(or) reports (ODM) with number

▒ OFR -Open File Report (includes uncoloured maps)

▒ 2271 -Coloured Geological Map

— P -Preliminary Map

▨ Boundary of Resident Geologist's District

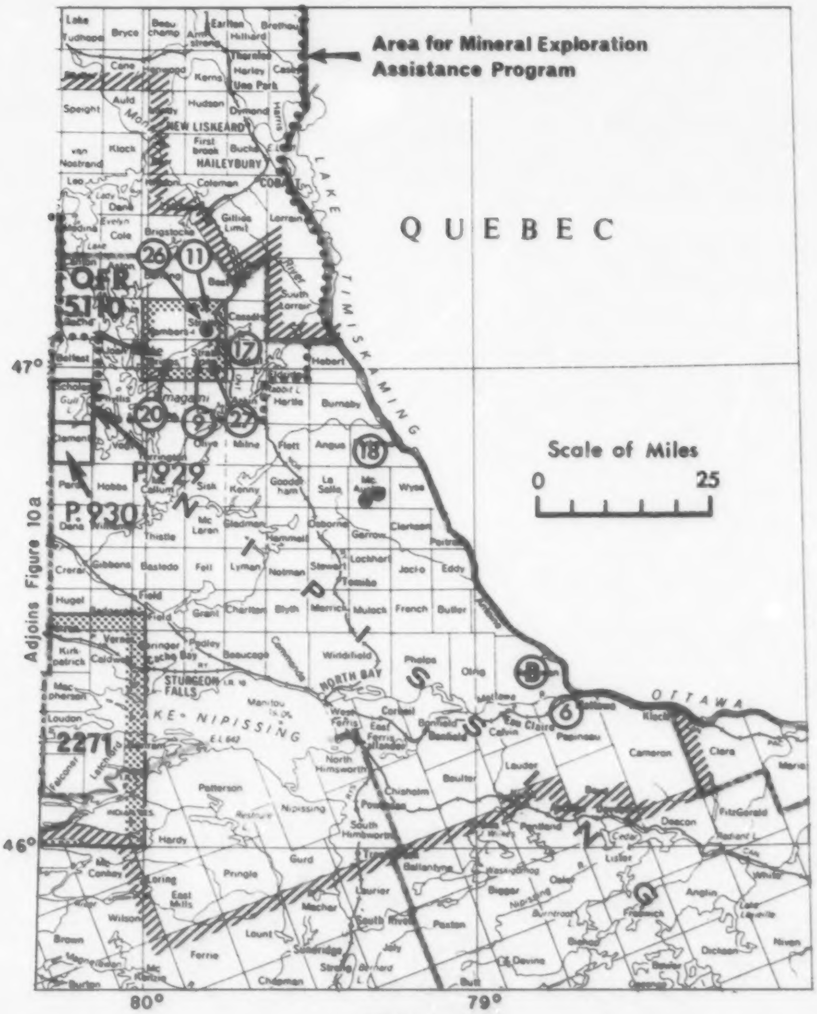
Area for Mineral Exploration Assistance Program
QUEBEC
LAKE TIMISKAMING
NIPISSING
LAKE NIPISSING
OTTAWA
OFR 5110
P.929
P.930
2271
26
11
17
20
9
27
18
8
6
NEW LISKEARD
HAILEYBURY
COBALT
NORTH BAY
STURGEON FALLS
Temagami
Scale of Miles
0
25
47°
46°
80°
79°
Adjoins Figure 10a

Figure 10b

SUDBURY RESIDENT GEOLOGIST'S DISTRICT

1974 REPORT

# of the

SUDBURY RESIDENT GEOLOGIST

by

D.G. Innes[1]

INTRODUCTION: The level of exploration activity in the Sudbury Resident Geologist's district over the past three years was significantly increased during the last two months of 1973 and the first five months of 1974. During January 1974, 877 claims were recorded representing 44 percent of the total number of claims recorded in 1973. Most of the activity can be related to uranium exploration programs in the Agnew Lake area, west of Sudbury, and to a lesser extent in areas north of Sudbury. Base metal exploration programs carried out in the Benny-Cartier and Temagami areas also accounted for some of the increase in activity.

The writer assumed the duties of Resident Geologist at Sudbury on January 14, 1974. Staff consists of Y.M. Paquette (Secretary), and R.L. Debicki (Geological Assistant).

As of January 1, 1974, new Resident Geologist's district boundaries have been in effect. Assessment files, rock specimens, and geological maps for 171 townships have been sent to the Kirkland Lake office (12 townships), the Sault Ste. Marie office (12 townships), and to the Timmins office (147 townships). Data on townships previously in other districts, now within the Sudbury district, have been incorporated into the Sudbury office files.

In December 1974, the Sudbury Resident Geologist's office was relocated to 1112 The Kingsway, Sudbury.

RESIDENT GEOLOGIST'S ACTIVITIES: Staff at the Sudbury Resident Geologist's office participated in a number of projects during 1974. Normal services to the public included: gathering and filing of mineral exploration and work data received from private companies and individuals and from various publications; providing a consultative service to the public on all facets of geology and exploration; rock and mineral identification; visiting various mining properties and conducting property examinations; and compiling monthly reports on geological and mining exploration in the district.

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[1] Resident Geologist, Ontario Ministry of Natural Resources, 1112 The Kingsway, Sudbury, P3B 2E5.

R.L. Debicki completed a report on the geology and scenery of Killarney Provincial Park; completed a compilation of radiometric ages in the Sudbury district; compiled a bibliography of published and unpublished geological research dealing with the Sudbury area; carried out field mapping in McKim Township; conducted field trips for visiting students and geologists in the Sudbury area; assisted the writer in a sand-gravel and industrial minerals inventory and in the preparation of land-use planning data.

The writer prepared a paper entitled "Proterozoic Volcanism and Associated Sulphide-Bearing Metasedimentary Rocks in the Sudbury Area" which was presented in May to the 20th Annual Institute on Lake Superior Geology held in Sault Ste. Marie. In connection with this meeting, K.D. Card (Ontario Division of Mines), M.J. Frarey (Geological Survey of Canada), E.F. Pattison (The International Nickel Company of Canada Limited) and the writer prepared and conducted a field trip dealing with Precambrian igneous rocks of the north shore of Lake Huron. In March, 1974, the writer was appointed to, and participated in, the First Polytechnical Advisory Committee Annual Meeting, Cambrian College, Sudbury Campus.

The writer was involved in various projects concerning land-use planning in the district. Background geological and mineral-industry data were gathered, and reports and mining potential maps were prepared for the: McConnell Lakes Area, North Bay Administrative District of the Ontario Ministry of Natural Resources; and for the Wanapitei Lake North Area, Sudbury Administrative District. A consultative service was provided for a sand and gravel inventory in the Espanola Administrative District and for numerous smaller projects concerning various aspects of land use. A sand-gravel-industrial minerals inventory for the Sudbury Resident Geologist's district was initiated in 1974 as a result of increased interest in these commodities by municipal governments and the public. Data gathered thus far have been plotted on 1 inch to 1 mile base maps and include surficial geology, industrial mineral occurrences, sand, gravel and clay deposits, and quarry and pit locations.

A library of representative rock types in the Sudbury Resident Geologist's district has been initiated and will include hand specimens, location maps, and any available associated data such as thin sections, polished sections, and chemical analyses.

K.D. Card[1] and the writer completed geological mapping in the Benny-Cartier area, and a report is presently being prepared. Geological mapping in McKim Township was initiated by the writer and will continue in 1975. The writer was also involved with conducting field trips for local and visiting geologists and students, setting up rock and mineral displays and conducting earth science lectures at local schools.

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[1] Proterozoic Subsection Leader, Precambrian Geology Section, Geological Branch, Ontario Division of Mines, Toronto.

GEOLOGICAL BRANCH ACTIVITIES: E.B. Freeman of the Geoscience Information Office, Geoservices Section, conducted a mineral exploration course in North Bay and numerous earth science courses at Junior Ranger camps in the district.

K.D. Card of the Precambrian Geology Section and the writer completed geological mapping in the Benny-Cartier area, 40 miles (69 km) northwest of Sudbury. The area includes Hess, Moncrieff and Craig Townships, most of Ouellette (formerly Township 115), Munster, Ulster, Stralak Townships and parts of Gilbert, Solski (formerly Township 114), Tofflemire (formerly Township 108), Hart, Cartier, Harty and Leinster Townships. Preliminary Maps P.948 and P.949 covering the eastern part of this area were issued in 1974.

S.B. Lumbers, Curator of Geology, Royal Ontario Museum, carried out mapping in the Mattawa-Deep River area (described in ODM publication MP59) on behalf of the Precambrian Geology Section.

EXPLORATION ACTIVITY: The International Nickel Company of Canada Limited and Falconbridge Nickel Mines Limited continued exploration for nickel-copper deposits in areas underlain by the Nickel Irruptive in the Sudbury area.

Several exploration programs were carried out in other parts of the district and are summarized in Table 21; the locations are shown on Figure 10.

Renewed interest in uranium and generally higher metal prices, especially for gold, during the later part of 1973 and throughout 1974, encouraged many mining companies and individuals to re-examine known mineral prospects, occurrences and past producing mines. As a result, two past producers are to be reopened and producing by late 1975: the Lake Geneva mine, Hess Township (lead-zinc-silver) by Devon Resources Limited and the Agnew Lake mine by Agnew Lake Mines Limited, Hyman Township (uranium). In addition, two long known mineral prospects, the Alexander deposit (copper) in May Township and the Stralak deposit (lead-zinc-copper-silver) in Craig Township are being developed by Devon Resources Limited and production is planned for 1975.

The Agnew Lake area, west of Sudbury, the Seagram and Turner Townships area, northeast of Sudbury, and the Roberts Township area, north of Sudbury were major exploration targets for uranium during 1974.

Exploration programs for base metal mineralization associated with Early Precambrian metavolcanic-metasedimentary belts were carried out by different companies and individuals in the Benny-Cartier and Temagami areas. Middle Precambrian volcanic rocks in Baldwin, Drury and Denison Townships were also actively explored for base metal mineralization during the year. Limestones of the Espanola Formation in Hess, Leinster, Moncrieff, Hart and Porter Townships were explored for their lead-zinc-copper and silver potential. In addition, the Espanola Formation in Vernon Township was examined for its potential as a source for flux-grade limestone.

The Nipissing Diabase in the Sudbury area was actively explored by numerous companies and individuals as a potential source for copper, nickel and precious metal deposits. Most exploration programs were carried out in areas southwest of Sudbury in Curtin, Mongowin and McKinnon Townships and northeast of Sudbury in Davis, Kelly, Janes and Scadding Townships. A zone of silicified feldspathic sandstone in contact with Nipissing-type diabase in south-central Nairn Township was found to contain chalcopyrite, arsenopyrite, pyrrhotite, pyrite and minor native copper mineralization. The associated diabase contains local, disseminated pyrite, pyrrhotite, and chalcopyrite mineralization. From a conversation with the holders (D. Rastall and W. Alanen) of this new occurrence, the deposit has been outlined magnetically and is from 6 to 25 feet (2-8 m) wide and up to 230 feet (70 m) in length. Trenching and sampling has been carried out on the occurrence and assays of the mineralized rock yielded 4.5 percent copper; 0.15 percent nickel; 0.9 ounces gold per ton; and 0.35 ounces silver per ton (Rastall, personal communication).

Interest in placer gold during 1974 resulted in exploration activity by several companies and individuals in the Vermilion and Wanapitei River systems northeast of Sudbury.

SUGGESTIONS TO PROSPECTORS: Careful exploration for large tonnage-low grade copper-nickel-precious metal deposits associated with Nipissing-type diabase intrusions is warranted. Such a deposit is currently being examined in Curtin Township, southwest of Sudbury. In light of higher metal prices, it is suggested that as well as exploring the Nipissing Diabase generally, known prospects and past producing properties should be re-examined. Recent studies by Card and Pattison (1973) suggest that metals such as copper and nickel can occur disseminated throughout the diabase or locally concentrated in "wet zones" as indicated by the presence of granophyre, quartz veins, carbonate and epidote.

Due to the increased price of gold it is suggested that all old gold prospects be re-examined. Areas suitable for the discovery of placer gold deposits, such as the Vermilion, Wanapitei and Spanish River systems warrant careful geological investigation.

Continued base metal exploration is warranted in the Temagami, Benny and Sudbury metavolcanic-metasedimentary belts. Recent mapping in all of these areas is available (Temagami area: ODM report OFR5110; Benny area: ODM Preliminary Maps P.948, P.949; Sudbury area: ODM Preliminary Maps P.668, P.669 - see Card 1971a; 1971b) and will help to identify target areas for prospecting.

In the Annual Report of the Resident Geologists' Section, Geological Branch, 1973, (ODM publication: MP57) pages 132 and 133 outline features that may lead prospectors to locate mineralized offset dikes associated with the Nickel Irruptive. Recent mapping by K.D. Card and the writer in the Benny-Cartier area (ODM Preliminary Map P.949), resulted in the mapping of an additional 4 miles (6 km) of the Foy Offset dike in Hess and Harty Townships. Associated with the offset dike are breccia zones locally developed in the granitic host rock. It is suggested that by careful mapping of these breccia zones it may be possible to locate extensions of known offsets and perhaps to discover new offset dikes.

Minor concentrations of chalcopyrite, sphalerite and pyrite have been found in Late Ordovician bioherms (reefs) on Manitoulin Island and on the Bruce Peninsula. Drilling by Union Carbide Exploration Limited in 1968 on Manitoulin Island revealed a saline aquifer at the Paleozoic-basement unconformity that contained anomalous concentrations (1,000 times normal) of copper, zinc, lead and nickel. The cause and significance of these anomalies should be investigated.

Numerous mafic dikes suitable for trap-rock quarrying exist along the North Channel and on the islands of northern Georgian Bay.

Sand, gravel and industrial minerals have an increasingly higher potential for development in northern Ontario as reserves of these commodities become depleted in southern Ontario and as urban centres throughout the Province grow. In this regard, exploration for clay deposits suitable for the ceramic industry in the Agnew Lake-Espanola areas is suggested. Limestone deposits such as those of the Espanola Formation, and the Paleozoic deposits on Manitoulin Island have potential for smelter flux and building aggregate. In addition, deposits of kyanite, garnet, vermiculite, nepheline syenite, feldspar and building stone occur in the Sudbury Resident Geologist's district.

MINING AND DEVELOPMENT OPERATIONS: Nickel, copper, platinum group metals, gold, silver, cobalt, selenium and tellurium are produced from the nickel-copper ores in the Sudbury area. Falconbridge Nickel Mines Limited continued production from the Falconbridge, East Falconbridge, Onaping, Fecunis Lake, Strathcona, Longvack South, Hardy Open Pit and North mines. Underground operations at the Hardy mine and production at the Boundary mine were terminated during 1974. The International Nickel Company of Canada Limited continued production from the Garson, Kirkwood, Creighton, Crean Hill, Levack West, Levack, Coleman, Little Stobie, Frood-Stobie, Clarabelle No.2 Pit, Copper Cliff North, Copper Cliff South and Victoria mines. Sulphur used to manufacture sulphuric acid and other chemicals, and iron ore were also produced by The International Nickel Company of Canada Limited.

The Murray and Totten mines were maintained on a standby basis during 1974 by The International Nickel Company of Canada Limited. Development operations were carried out at the Lockerby and Fraser mines by Falconbridge Nickel Mines Limited.

The new Copper Cliff Refinery of The International Nickel Company of Canada Limited reached its full design capability of 125 million pounds of nickel per year during 1974.

Falconbridge Nickel Mines Limited, continued its $95 million revision program of their Sudbury facilities during 1974. Scheduled for completion in 1976, the project involves a smelter environmental improvement program and construction of an associated sulphuric acid plant.

Canadian Industries Limited completed a $4 million expansion program of the sulphuric acid works at Copper Cliff, Ontario. The expansion will increase production capacity by 150,000 tons annually.

National Steel Corporation of Canada Limited continued production of iron ore pellets from its plant in Hutton Township, 25 miles (40 km) north of Sudbury.

Silica for smelter flux was produced from the Lawson quarry in Curtin Township by The International Nickel Company of Canada Limited. Indusmin Limited mined quartzite for use in the flint glass and ceramic industries from a quarry on Badgeley Island in Lake Huron.

In July 1974, Devon Resources Limited announced (Resident Geologist's files, Ontario Ministry of Natural Resources, Sudbury) their intention to reopen the Geneva lead-zinc-silver mine, Hess Township, the Stralak copper-lead-zinc-silver prospect, Craig Township, and the Alexander copper property, May Township. Surface preparation, mine dewatering and recollaring the shaft at the Geneva property is currently underway. A 125 ton per day mill is to be installed at the Geneva mine site. A semi-portable 150 ton per day mill is to be installed at the Alexander property in May Township where production is expected in late 1975.

Mica Rock Incorporated, McLarens Bay Stone Quarry and Mr. J. Haberer continued production of building stone in La Salle and McAuslan Townships, 30 miles (48 km) northeast of North Bay.

Kerr Addison Mines Limited announced their intention to reopen the Agnew Lake mine in Hyman Township. Development programs include dewatering of the underground workings and a surface and underground program in preparation for leaching operations, scheduled for completion by mid-April, 1975. An engineering crew is currently conducting preliminary surveys in preparation for the construction of a leach plant.

Sherman Mine, owned jointly by Dominion Foundries and Steel Limited and Tetapaga Mining Company Limited, continued production of iron ore pellets during 1974.

The Kanichee Mining Incorporated copper-nickel-platinum mine continued production during 1974.

Hartland Mines Limited carried out feasibility studies on the Long Lake gold mine (past producer) in Eden Township.

NEW INFORMATION: New information received during the year consists of exploration data submitted for assessment work credit (Table 22), exploration data donated by companies and individuals, company prospectuses (Table 22), maps and reports published by the Ontario Division of Mines (see "ODM Maps and Reports Issued by the Geological Branch in 1974"), and by the Geological Survey of Canada, theses, and papers published in scientific and technical journals (see "Research and Mapping by Other Organizations" and "Recent Publications and References").

Table 20 summarizes and compares the assessment work data received for 1973 and 1974.

Table 20 Summary of Assessment Work Received

Sudbury Resident Geologist's District

Type of Work	1973	1974
Townships or areas represented	455	354
Geological surveys	10	1
Geophysical surveys	21	14
Reports of drilling	17	14
Total footage of reported drilling	18,404	22,431
Reports of trenching	18	14

Known exploration activity during 1974 is summarized in Table 21. A list of assessment files received during the year is given in Table 22. Areas covered by maps and reports published by the Ontario Division of Mines are shown on Figure 10.

RESEARCH AND MAPPING BY OTHER ORGANIZATIONS:

Research Studies, Laurentian University, Sudbury

Ball, R.
Chemistry and Petrology of the Nipissing Diabase in Curtin Township. B.Sc. thesis.

Campbell, G.
Geology of the Sherman Mine Iron Formation, Temagami, Ontario. M.Sc. thesis.

Copper, P.

The Paleoecological Succession from Ordovician to Silurian, Eastern Manitoulin Island. Staff research.

Reef Growth and Development in the Silurian of Manitoulin Island. Staff research.

Debicki, R.L.

Stratigraphy, Depositional Environment and Regional Setting of the McKim Formation, Sudbury Area. M.Sc. thesis.

Everitt, R.

Fracture and Lineament Analysis of the Sudbury Basin Rocks. M.Sc. thesis.

Grant, M.

The Petrology-Geochemistry of the Association of Lead-Zinc-Copper Mineralization and Volcanic Rock Type, Benny Greenstone Belt. M.Sc. thesis.

Grant, R.

Chemical Variation in Mafic to Intermediate Volcanics in Archean Greenstone Belts. M.Sc. thesis.

Grawbarger, D.

Paleoecology of an Upper Ordovician Biostrome on Eastern Manitoulin Island. B.Sc. thesis.

Hawke, D.

Petrology, Geochemistry and Mineralization of a Layered Mafic Intrusion at the Kanichee Mine, Temagami, Ontario. M.Sc. thesis.

Horst, R.

Paleoecology of some Late Ordovician Biostromes on Manitoulin Island. M.Sc. thesis.

Idahosa, T.

Lateral Variation of Rock Types in the Foy Offset, North Range, Sudbury Nickel Irruptive. M.Sc. thesis.

James, R.

Experimental Studies on Chlorite Alteration Pipes Associated with Base Metal Deposits. Staff research.

Martins, J.

Regional Studies on the Mineralogy and Geochemistry of the Volcanic Rocks in the Benny Greenstone Belt. M.Sc. thesis.

Nikolic, S.

Origin of the Footwall Ore Zones at Strathcona Mine, Sudbury Nickel Irruptive. M.Sc. thesis.

Pearson, D.

Patterns of Biogenic Structures in Paleozoic Rocks on Manitoulin Island and in the New Liskeard Area. Staff research.

Stratigraphy of the Espanola Formation in the Elliot Lake Area. Staff research.

Robertson, D.

Petrology and Geochemistry of a Metadiorite Sill Associated with the Temagami Mine Copper Deposit, Temagami, Ontario. M.Sc. thesis.

Rousell, D.H., and Gray, J.T.

Morphology and Geological Hazards of the Vermilion River, Sudbury Basin, Staff research.

Rousell, D.H.

The Origin of Foliation and Lineation in the Onaping Formation and the Deformation of the Sudbury Basin. Staff research.

Soucie, G.

Petrology and Geochemistry of the Temagami Greenstone Belt. M.Sc. thesis.

Toews, F.

Origin of the Late Granite Breccia Ore, Strathcona Mine, Sudbury Nickel Irruptive. M.Sc. thesis.

Ukranic, W.

Petrology and Geochemistry of the Gabbro-Anorthosite in the Sudbury-Agnew Lake Areas. M.Sc. thesis.

Other Research Studies

Dutch, S.

The Structure and Nature of the Creighton Granite, Sudbury, Ontario. Ph.D. thesis, Columbia University.

Graduate Student

Moon Features in the Sudbury Nickel Irruptive. Brown University, Providence Rhode Island.

Snyder, W.R.

Sulphur Isotope Fractionation in Smelter Emission Streams and Precipitation, Sudbury, Ontario. B.Sc. thesis, McMaster University.

Palmer, C.

Paleomagnetic Studies of the Nipissing Diabase in the Sudbury Area. Staff research, University of Western Ontario.

Gratten-Bellew, P.E.
Potential Alkali-Reactivity of Aggregates in the Sudbury Area. Study for Division of Building Research, National Research Council of Canada (report in preparation).

T. Krogh of the Carnegie Institution of Washington collected rock specimens for zircon radiometric dating, including: porphyritic quartz monzonite from the Cartier granite; porphyritic rhyolite flows from the Benny metavolcanic-metasedimentary belt; gneissic granodiorite immediately north of the Benny belt; and pegmatite dikes in Nipissing Diabase, McKim Township. Krogh's recent work on the norite phase of the Sudbury Nickel Irruptive has given a zircon age of 1,844 million years (personal communication).

Radiometric and petrographic studies by Van Schmus, Card and Harrower (1974) (see "Recent Publications and References") of core recovered by Union Carbide Exploration Limited drilling in 1968, suggest that the anomaly-causing bodies beneath the Paleozoic cover on Manitoulin Island are differentiated plutons similar to the Croker Island complex, and give a radiometric age of 1,500 million years. Further, it was found that basement rocks underlying the north half of Manitoulin Island are Huronian metasediments, and granitoid rocks of Early Precambrian age underlie the south half.

ODM MAPS AND REPORTS ISSUED BY THE GEOLOGICAL BRANCH IN 1974:

P.929	Scholes Township, District of Nipissing (41 I/16). Geology by H.D. Meyn, P.A. Maynes, and E.C. Grunsky, 1973; compilation by H.D. Meyn, 1973. Scale 1 inch to ¼ mile or 1:15,840.
P.930	Clement Township, District of Nipissing (41 I/16). Geology by H.D. Meyn, P.A. Maynes, and E.C. Grunsky, 1973; compilation by H.D. Meyn, 1973. Scale 1 inch to ¼ mile or 1:15,840.
P.948	Benny Area, Moncrieff Creek, District of Sudbury (41 I/12E, 41 I/13E). Geology by K.D. Card, D.G. Innes, and assistants, 1973. Scale 1 inch to ¼ mile or 1:15,840.
P.949	Benny Area, Hess Lake, District of Sudbury, (41 I/11W, 41 I/12E, 41 I/13E, 41 I/14W). Geology by K.D. Card, D.G. Innes, and assistants, 1973. Scale 1 inch to ¼ mile or 1:15,840.
Map 2229	Index to Aeromagnetic Maps of Ontario, Revised 1974. Scale 1 inch to 30 miles or 1:1,900,800.

Map 2271	Burwash, Districts of Nipissing, Parry Sound, and Sudbury (41 I). Geology by S.B. Lumbers, 1967, 1968, 1969. Scale 1 inch to 2 miles or 1:126,720.
Map 2310	Ontario Mineral Map, compilation by the Geological Branch, Ontario Division of Mines, Revised 1974. Scale 1 inch to 25 miles or 1:1,584,000.
OFR5079 Part 2	Operation Chapleau (part only), Geology of the Chapleau Area, Districts of Algoma, Sudbury, and Cochrane (41 J, 41 O, 42 B), by P.C. Thurston, G.M. Siragusa, and R.P. Sage; 248p., 17 figures, 23 tables, 31 photos, and 4 maps, scale 1 inch to 2 miles or 1:126,720.
OFR5079 Part 3	Operation Chapleau (part only). Economic Geology of the Chapleau Area, Districts of Algoma, Sudbury, and Cochrane (41 J, 41 O, 42 B), by P.C. Thurston, G.M. Siragusa, and R.P. Sage; 422p., 15 figures, 13 tables, 21 photos, and 4 maps, scale 1 inch to 2 miles or 1:126,720.
OFR5101	Geology of the Shakespeare-Dunlop Area, Sudbury District (41 I/5W) by K.D. Card and P.A. Palonen, 84p., 12 photos, 8 tables, 4 figures, and 2 maps, scale 1 inch to ¼ mile or 1:15,840.
OFR5103	Selective Retrieval from the Canadian Index to Geoscience Data on (1) Assessment Work (1972, 1973). Filed with the Ontario Division of Mines and (2) Reports Received under Ontario's Mineral Exploration Assistance Program (MEAP) by H.A. Groen.
OFR5104	Ontario Occurrences of Float, Placer Gold, Indicator Minerals for Kimberlite, etc. by S.A. Ferguson; 225p., 6 figures.
OFR5107	Stratigraphy, Sedimentology and Petrology of the Huronian Supergroup of the Sudbury-Espanola Area, Ontario (41 G/16E, 41 I/2E, 3, 4, 5, 6, 7E, 41 J/1E, 8E) by K.D. Card, D.G. Innes and R.L. Debicki; 300p., 23 figures, 10 tables, 28 stratigraphic columns.
OFR5110	The Geology of the Northeast Temagami Area, District of Nipissing (31 L/13W, 31 M/4W, 41 P/1E) by Gerald Bennett; 294p., 10 tables, 11 figures, 16 photos (xerox copies). Accompanied by Maps P.595, 596, 666, and 667, scale 1 inch to ¼ mile or 1:15,840.
OFR5114	Mineral Exploration Assistance Program (MEAP), Fiscal Years 1971-72, 1972-73, and 1973-74 by S.A. Ferguson, E. Bayer and S.C. Sun, 1974, 70p.

MP57	Annual Report of Resident Geologists' Section, Geological Branch, 1973. Edited by C.R. Kustra; 192p., 22 figures, 17 tables.
MP59	Summary of Field Work, 1974, by the Geological Branch. Edited by V.G. Milne, D.F. Hewitt, and K.D. Card, 206p. plus various figures and key maps.
1973 Review	Ontario Mineral Review 1973, 136p. with various tables, figures and photos.

RECENT PUBLICATIONS AND REFERENCES:

Barnes, F.Q. and Lalonde, E.J.

1973: Lower Huronian Stratigraphy, Hyman and Drury Township, Sudbury District; p.147-156 in Huronian Stratigraphy and Sedimentation, edited by G.M. Young, Geol. Assoc. Canada Special Paper No. 12, 271p.

1974: Strain analysis of the Sudbury Basin, Ontario (abs.); (Am. Geophys. Union Trans.), Vol.55, p.434.

Bell, K., Blenkinsop, J., and Watkinson, D.H.

In prep: Geochronology of the spanish River Alkalic Rock-Carbonatite Complex, Townships 107 and 108, Ontario (Manuscript).

Brocoum, S.J. and Dalziel, I.W.D.

1974: The Sudbury Basin, The Southern Province, The Grenville Front, and the Penokean Orogeny; Geol. Soc. America Bull., Vol.85, No. 10, p.1571-1580.

Cabri, L.J. and Laflamme, J.H.G.

1974: Mineralogical Investigations of the Platinum-Group Elements in the Sudbury Area Deposits - A Preliminary Report; p.16 in Authors Abstracts, Joint Annual Meeting, Geol. Assoc. Canada and Miner. Assoc. Canada, May 1974, St. John's, Newfoundland.

Cape, D.F.

1973: A Petrologic and Geochemical Study of a Gabbro, Anorthositic Gabbro Intrusion and Neighbouring Volcanics, Northwest Corner of May Township. District of Sudbury. Unpublished B.Sc. Thesis, University of Windsor, Ontario, 60p.

Card, K.D.

1971a: Panache Lake Area (West Part), Districts of Sudbury and Manitoulin; Ontario Dept. Mines and Northern Affairs, Prelim. Map P.668, Geol. Ser., scale 1 inch to 1 mile. Geological compilation 1971.

1971b: Panache Lake Area (East Part), Districts of Sudbury and Manitoulin; Ontario Dept. Mines and Northern Affairs, Prelim. Map P.669, Geol. Ser., scale 1 inch to 1 mile, Geological compilation 1971.

Card, K.D., Church, W.R., Franklin, J.M., Frarey, M.J., Robertson, J.A., West, G.F., and Young, G.M.

1972: The Southern Province; p.335-380 in Variations in Tectonic Styles in Canada, edited by R.A. Price and R.S.W. Douglas, Geol. Assoc. Canada, Special Paper No. 11, 688p.

Card, K.D. and Pattison, E.F.

1973: Nipissing Diabase of the Southern Province, Ontario; p.7-30 in Huronian Stratigraphy and Sedimentation, edited by G.M. Young, Geol. Assoc. Canada, Special Paper No.12, 271p.

Debicki, R.L.

1974: Unpublished report on Geology and Scenery of Killarney Provincial Park, Districts of Manitoulin and Sudbury. Resident Geologist's files, Ontario Ministry of Natural Resources, Sudbury. 30p.

Dence, M.R., Robertson, P.B., and Wirthlin, R.L.

1974: Coesite from the Lake Wanapitei Crater, Ontario; Earth Planet. Sci. Letters, Vol.22, No.2, p.118-122.

Gibbins, W.A. and McNutt, R.H.

1974: Radiometric Studies and Polymetamorphism at Sudbury, Ontario; p.34 in Authors Abstracts, Joint Annual Meeting, Geol. Assoc. Canada and Miner. Assoc. Canada, May 1974, St. John's, Newfoundland.

Guthrie, A.E.

1974: A Lead-Zinc-Copper Deposit in the Espanola Formation, Hess Township, Ontario. Unpublished B.Sc. Thesis, Laurentian University, Sudbury, Ontario, 72p.

Innes, D.G.

1974: Proterozoic Volcanism and Associated Sulphide-Bearing Metasedimentary Rocks in the Sudbury Area; p.16 in Prog., Abstr., Field Guides for 20th Ann. Inst. Lake Superior Geol., May 1974, Sault Ste. Marie, Ontario, edited by P.E. Giblin, Gerald Bennett, and E.J. Leahy, 149p.

Kustra, C.R. (editor)
1974: Annual Report of Resident Geologists' Section, Geological Branch, 1973; Ontario Div. Mines, MP57, 183p.

Michelutti, R.
1974: How to Establish Vegetation on High Iron-Sulphur Mine Tailings; Canadian Mining J., Vol.95, No. 10, p.54-58.

Mussakowski, R.
1973: Geological Analysis of ERTS Imagery of The Sudbury Area; Rept. 3, Canada Centre for Remote Sensing, Prince Albert Satellite Station, Saskatchewan.

Naldrett, A.J.
1973: Nickel Sulphide Deposits - Their Classification and Genesis, with Special Emphasis on Deposits of Volcanic Association; C.I.M. Bull., Vol.66, No.737, p.45-63.

Robertson, D.S. and Lattanzi, C.R.
1974: Uranium Deposits of Canada; Geoscience Canada, Vol.1, No. 2 p.8-19.

Robertson, W.A. and Watkinson, D.H.
1974: Paleomagnetism of the Spanish River Alkalic Rock-Carbonatite Complex, Twps. 107 and 108, Ontario; Canadian J. Earth Sci., Vol.11, No.6, p.795-800.

Rousell, D.H.
1974: The Origin of Foliation and Lineation in the Onaping Formation and the Deformation of the Sudbury Basin; p.77-78 in Authors Abstracts, Joint Annual Meeting, Geol. Assoc. Canada and Miner. Assoc. Canada, May 1974, St. John's, Newfoundland.

Saarnisto, M.
1974: The Deglaciation History of the Lake Superior Region and its Climatic Implications; Quaternary Research, Vol.4, p.316-339.

Schwarz, E.J.
1973: Magnetic Characteristics of Massive Sulfide Ore Bodies near Sudbury, Canada; Canadian J. Earth Sci., Vol.10, No. 12, p.1735-1743.

Simmons, E.C., Hanson, G.N., and Lumbers, S.B.
1974: Comagmatic Andesine Anorthosites and Quartz-Monzonites - Products of Differentiation?; p.956-957 in Abstracts, Geol. Soc. America, 1974 Annual Meetings, Vol.6, No. 7, 1095p.

Shieh, Yuch-Ning and Schwarcz, H.P.
1974: Oxygen Isotope Studies of Granite and Migmatite, Grenville Province of Ontario, Canada; Geochim. Cosmochim. Acta, Vol.38, No. 1, p.21-45.

Van Schmus, W.R., Card, K.D. and Harrower, K.L.
in prep: Geology and Ages of Buried Precambrian Basement Rocks, Manitoulin Island, Ontario, Canada; submitted for publication, Canadian J. Earth Sci.

Vos, M.A.
1974: Intergrowth Textures in Norite at Strathcona and their Interpretation; p.36 in 20th Ann. Meet., Inst. on Lake Superior Geol., May 1974, Sault Ste. Marie, Ontario, 149p.

Watkinson, D.H. and Grimes, J.H.
1974: The Spanish River Alkalic Rock-Carbonatite Complex, Twps. 107 and 108, Ontario; p.38 in Prog. Abstr., Field Guides for 20th Ann. Inst. Lake Superior Geol., May 1974, Sault Ste. Marie, Ontario, edited by P.E. Giblin, Gerald Bennett, and E.J. Leahy, 149p.

Watt, A.R.
1974: The Ontario Silica Operation of Indusmin Ltd.; 1974 Annual Meeting CIM, Paper No.58 (Abst. in CIM Bull., Vol.67, No. 743, p.63).

Young, G.M. (editor)
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Table 21 Exploration Activity in 1974

The following is a list of individuals and companies known to be engaged in exploration within the Sudbury district, excluding exploration on the Sudbury Nickel Irruptive, and the type of work undertaken in each case. The numbers correspond to the numbered areas on Figure

Sudbury Resident Geologist's District

Company or Individual	Activities
1. Amax Exploration,Inc.	Diamond drilling and geological survey on uranium occurrence, Roberts Township. Geological investigations in Hess Township and on an iron occurrence, Munster Township.
2. Bardswich, L. J.	Magnetometer survey, iron-copper occurrence, Hess Township.
3. Billoki, J. J.	Prospecting, Aylmer Township.
4. Blue, P.	Diamond drilling, Shakespeare Township.
5. Chayer, A.	Magnetometer survey, nickel-copper occurrence, Lorne Township.
6. Clark, A. H.	Magnetometer survey, Papineau Township.
7. Confederation Mining Corp.	Prospecting, trenching. Base metal occurrence, Ulster and Craig Townships.
8. Consolidated Morrison Explors. Ltd.	Airborne Gamma-ray spectrometer surveys and magnetometer surveys in Ermatinger, Hyman, Nairn, Shakespeare, Baldwin and Porter Townships, Uranium exploration.
9. Copperfields Mining Corp. Ltd.	Electromagnetometer, and magnetometer surveys, copper prospect, Strathcona Township.
10. Devon Resources Ltd.	Prospecting, Stralak lead, zinc, copper, silver prospect, Craig Township.
11. Gore, J. A.	Electromagnetometer, magnetometer, geological surveys, Strathy Township.

Company or Individual	Activities
12. Grand Valley Mining Ltd.	Electromagnetometer surveys, copper-nickel occurrence, Davis Township.
13. Groundstar Resources Ltd.	Diamond drilling, Berkeley Mines Limited property, copper, gold prospect, Davis Township.
14. Gulf Minerals Canada Ltd.	Diamond drilling, on uranium prospects, Roberts Township.
15. Humphries, H. C.	Diamond drilling, uranium occurrence, Roberts Township.
16. Huycke, J. G.	Self-potential survey, base metal occurrence, Moncrieff Township.
17. International Nickel Company of Canada Ltd., The	Exploration, Temagami area.
18. Iron City Mines Ltd.	Diamond drilling, iron prospect, Parkman Township.
19. Mattagami Lake Mines Ltd.	Diamond drilling, copper-nickel-gold prospect, Curtin Township.
20. Niemetz, H.	Diamond drilling, copper-gold occurrence, Briggs Township.
21. Noranda Exploration Company Ltd.	Prospecting and reconnaissance surveys for uranium in the Sudbury district generally and for copper, nickel mineralization in the Nipissing Diabase.
22. Rastall, D., Alanen, W.	Prospecting, copper-gold-silver occurrence, Nairn Township.
23. Rose, E. A.	Diamond drilling, gold prospect Davis Township.
24. Ryanor Mining Company Ltd.	Diamond drilling, on copper prospect, Drury Township.
25. St. Joseph Explorations Ltd.	Prospecting, Hess Township.
26. Willars, J. G.	Magnetometer and Electromagnetometer surveys, gold occurrence, Strathy Township.
27. Wright, R. J.	Electromagnetometer and magnetometer surveys, Strathcona Township.

Table 22 Assessment Work Received in 1974

Sudbury Resident Geologist's District

Abbreviations

A -Airborne
3 DDH (850')-3 diamond drill holes totalling 850 feet
EM -Electromagnetic Survey
IP -Induced Polarization Survey
GL -Geological Survey
MAG -Magnetometer Survey
SP -Self Potential

Township or Area	Ownership	Type of Data	Commodity Sought
Afton, Macbeth Clement & Scholes	Leger Mines Ltd.	Prospectus	Cu,Au,Pb,Zn
Antoine	Arrowhead Silica Corp.	Trenching	Ky
Baldwin	Maki, O. T.	Trenching	U
Butler	Arrowhead Silica Corp.	Assays	Ky
Craig & Falconbridge	Tri-Bridge Consolidated Gold Mines Ltd.	Prospectus	Au,Cu,Pb,Zn
Curtin	Aggressive Mining Ltd.	IP, EM	Cu,Ni
	Bousquet, L.	Trenching	Au
	Mattagami Lake Mines Ltd.	3 DDH (850')	Cu,Au
	White, Stanley	2 DDH (253'), IP	Cu
Cynthia	Hardie, A. A.	Assays, GL	Cu
Davis	Barry, H. V.	Trenching	Au
	Rose, E. A. & Sylla, N. F.	Trenching, 7 DDH (208'), Assays	Au
Drury	Ryanor Mining Co. Ltd.	10 DDH (2072')	Cu
Dryden	Pan Central Explorations Ltd.	EM	Cu,Ni
Falconbridge	Copper Prince Mines Ltd.	Summary Summer Exploration Program	Cu,Ni
	International Nickel Co. of Canada Ltd., The	13 DDH (9156')	Cu,Ni
Hanmer	International Nickel Co. of Canada Ltd., The	2 DDH (303') EM, MAG	Cu,Ni
Hart	Jar-Vin Magnetite Syndicate	Summary of 1972-73 work reports	Pb,Zn,Ag,Cu
Hutton	Gulf Minerals Canada Ltd.	5 DDH (1448')	U
	Miron, T. A.	Trenching	

Township or Area	Ownership	Type of Data	Commodity Sought
Hyman	Agnew Lake Mines Ltd.	Core (1138') Agnew Lake mine	U
Jocko	Mote, M. K.	Trenching	Building Stone
Lorne	Chayer, A.	MAG	Ni
Mackelcan	Barry, H. V.	Trenching	Sulphides
McAuslan	Mote, G. M.	Trenching	Building stone
Moncrieff	Huycke, J. G.	SP	Base Metals
Morgan	International Nickel Co. of Canada Ltd., The	MAG, EM	Cu,Ni
Norman	International Nickel Co. of Canada Ltd., The	MAG, EM	Cu, Ni
Olive	Keith, J. F.	Trenching	Cu
Papineau	Clark, A. A. Jr.	MAG	V,Ti,Fe
Parkin	Decade Explorations Ltd.	Amendment to Prospectus	Pb,Zn,Au
	Gulf Minerals Canada Ltd.	4 DDH (1965')	U
Parkman	Iron City Mines Ltd.	12 DDH(1507.5')	Fe
Raney	Baker, James M.	Core Log	
Roberts	Amax Exploration, Inc.	5 DDH (1804')	U
	Burns, I.	Trenching	
	Humphries, H. C.	3 DDH (2197'), 15 core samples	U, Cu
Roberts, Creelman, Scadding, Parkin, Hutton	Gulf Minerals Canada Ltd.	A, EM, MAG, Radiometric	U
Scadding	Gulf Minerals Canada Ltd.	13 DDH (2516')	U?
Scholes,Phyllis, Joan & Belfast	North American Rare Metals Ltd.	Prospectus	
Shakespeare	Blue, Peter G.	1 DDH (38') Assays,(core sample)	Cu,Au
	Rodney Gold Mines Ltd.	GL	Au
Shakespeare & Baldwin	Currie Rose Gold Mines Ltd.	Prospectus	U
Strathy	Kanichee Mining Inc.	EM, MAG	Cu,Ni
	Willars, J. G.	MAG, EM	Base Metals

1974 REPORT
# of the
ALGONQUIN REGIONAL GEOLOGIST

by

J.R. Trusler

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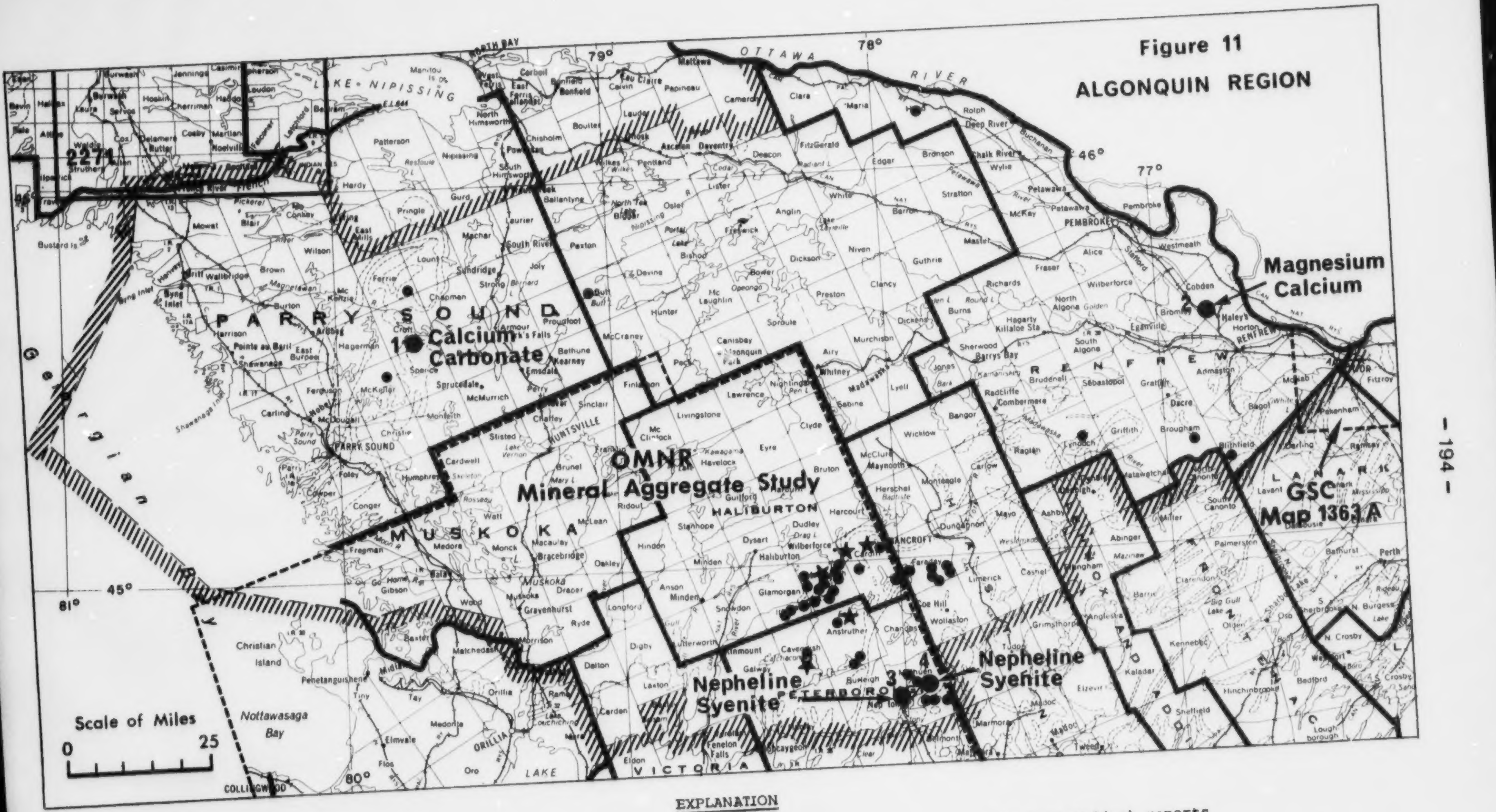

Figure 11

ALGONQUIN REGION

Magnesium Calcium
1 Calcium Carbonate
OMNR Mineral Aggregate Study
Nepheline Syenite
Nepheline Syenite
GSC Map 1363 A
2271
PARRY SOUND
MUSKOKA
HALIBURTON
RENFREW
LANARK
FRONTENAC
ADDINGTON
PETERBORO
VICTORIA
OTTAWA RIVER
LAKE NIPISSING
Georgian Bay
Nottawasaga Bay
Scale of Miles
0
25
79°
78°
77°
46°
45°
81°
80°

EXPLANATION

● Producing Mines (excepting stone quarries, clay, sand, gravel and silica extractive operation
1 Burcal Industrial Minerals Limited
2 Chromasco Limited
3 Indusmin Limited
4 Sobin Chemicals (Canada) Limited

• Assessment work filed and exploration activity in 1974

★ Prospectus or report (Ontario Securities Commission)

New Maps and(or) reports with number
——— 2271 - Coloured Geological Map (ODM)
- - - - { OMNR - Ontario Ministry of Natural Resources
GSC - Geological Survey of Canada

▨ Boundary of Algonquin Region

1974 REPORT
# of the
ALGONQUIN REGIONAL GEOLOGIST

by

J.R. Trusler[1]

INTRODUCTION: From January to November, 1974, U.J. Vagners, Regional Geologist, Central Region, was acting Regional Geologist for the Algonquin Region. He attended regular meetings and advised the Regional Management Team of the Ministry on mineral resource related matters. During the same period, the Regional Assessment Files were maintained by S.J. Gibson, Assistant to the Director, Geological Branch, in Toronto.

In December, 1974, the office of the Regional Geologist was assumed by J.R. Trusler and the Assessment Files were transferred to Huntsville. During December, the Regional Geologist's time was budgeted between assembling a library, attending Regional Management and Geological Branch meetings, commenting on municipal and park plans in various stages of development and discussing problems with Ministry personnel of the Regional administration.

GEOLOGICAL BRANCH ACTIVITIES: E.G. Bright of the Precambrian Geology Section started a detailed mapping program in Anstruther and Cavendish Townships. S.J. Gibson made field examinations in the vicinity of the Leslie M. Frost Natural Resources Centre near Dorset in connection with the preparation of a brochure on the geological features of the Resource Centre area. S.B. Lumbers, Curator of Geology, Royal Ontario Museum, completed mapping on behalf of the Geological Branch in the Mattawa-Deep River area. E.B. Freeman, head of the Geoscience Information Office, Geoservices Section, visited and instructed at all seven Junior Ranger camps in the Algonquin Region.

MINING ACTIVITY: Burcal Industrial Minerals Limited started production of high quality calcium carbonate during the summer of 1974. The open pit mine is located in Spence Township but six other deposits are reported by the company in Croft, Lount and Spence Townships.

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Chromasco Limited produces magnesium, calcium, titanium, strontium, barium, and zirconium from high purity dolomite deposits near Haley, in Renfrew County. Nepheline syenite is produced from Blue Mountain in Methuen Township by Indusmin Limited and by Sobin Chemicals (Canada) Limited (formerly International Minerals and Chemical Corporation (Canada) Limited). Currently, Indusmin Limited is undertaking an expansion program to produce additional paint and plastic extenders and ceramic materials. Other mineral production in the Algonquin Region is derived from clay and structural materials.

EXPLORATION ACTIVITY: Staking activity within the Region increased as 541 claims were recorded, compared to 371 claims in 1973.

The total credit for assessment work received for the Algonquin Region increased from 10,989 days in 1973 to 15,559 days in 1974. The improvement in exploration activity in this Region is primarily a result of the anticipated future importance of uranium as an energy source. A summary of assessment work and other information, resulting from exploration activity, is contained in Tables 23, 24, and 25. The corresponding activities are depicted on Figure 11.

Other exploration activity not filed for assessment work in 1974, was carried out by C.D. Gris (radiometric survey for uranium) of Hamilton in Butt Township, and by Golden Giant Mines Incorporated (diamond drilling for uranium) on the former Canadian Radium Corporation property in Cardiff Township.

RECOMMENDATIONS FOR EXPLORATION: Despite recession in the economy, uranium is expected to maintain an increasing demand in the future. Known deposits of uranium-bearing pegmatites in the Bancroft area are being actively investigated presently. Lower grade deposits of uranium in marble which have been neglected in the past because they were uneconomical may now merit more detailed evaluation.

The development of a calcium carbonate deposit by Burcal Industrial Minerals Limited to fill an existing commodity demand exemplifies that the ever growing marketplace of southern Ontario and northeastern United States continually provides new opportunities for the innovative explorer. With the strong demand for insulation, vermiculite, for example, which is known to occur in this Region, may have substantial future importance.

With the increasing competition for land use in urban areas and their increasing need for structural materials (sand, gravel and crushed stone in particular) the economics of remote supply will soon be tenable. The viability of shipping aggregate from the Algonquin Region to the metropolitan areas may be commonplace within a decade. Capitalizing on this opportunity in the near future may prove prudent.

ODM MAPS AND REPORTS ISSUED BY THE GEOLOGICAL BRANCH IN 1974:

Map 2229	Index to Aeromagnetic Maps of Ontario, Revised 1974. Scale 1 inch to 30 miles or 1:1,900,800.
Map 2271	Burwash, Nipissing, Parry Sound, and Sudbury Districts (41 I). Geology by S.B. Lumbers, 1967, 1968, 1969. Scale 1 inch to 2 miles or 1:126,720.
Map 2310	Ontario Mineral Map, compilation by the Geological Branch, Ontario Division of Mines, Revised 1974. Scale 1 inch to 25 miles or 1:1,584,000.
OFR5103	Selective Retrieval from the Canadian Index to Geoscience Data on (1) Assessment Work (1972, 1973) filed with the Ontario Division of Mines and (2) Reports Received under Ontario's Mineral Exploration Assistance Program (MEAP) by H.A. Groen.
OFR5104	Ontario Occurrences of Float, Placer Gold, Indicator Minerals for Kimberlite, etc. (31, 32, 40, 41, 42, 43, 52, 53) by S.A. Ferguson, 225p., 6 figures.
MP57	Annual Report of Resident Geologist's Section, Geological Branch, 1973, (30, 31, 32, 40, 41, 42, 52). Edited by C.R. Kustra, 192p., 22 figures, 17 tables.
MP59	Summary of Field Work, 1974, by the Geological Branch (30, 31, 32, 40, 41, 42, 52). Edited by V.G. Milne, D.F. Hewitt, and K.D. Card, 206p., plus various figures and key maps.

OTHER ONTARIO MINISTRY OF NATURAL RESOURCES PUBLICATIONS ISSUED IN 1974:

Mineral Aggregate Study	Mineral Aggregate Study, Central Ontario Planning Region, prepared for the Ontario Ministry of Natural Resources by Proctor and Redfern Limited, Consulting Engineers and Planners, 11 chapters, 6 appendixes, illustrations, supplement.

Toward the year 2000: A Study of Mineral Aggregates in Central Ontario, prepared for the Ontario Ministry of Natural Resources by Proctor and Redfern Limited, Consulting Engineers and Planners. A Summary Report which is a supplement to the Mineral Aggregate Study or available separately.

Report of the Advisory Committee to the Minister of Natural Resources on the Revision of the Mining Act, 40p.

MAPS AND REPORTS ISSUED BY THE GEOLOGICAL SURVEY OF CANADA IN 1974:

Econ. Geol. Report No.29	Niobium (Columbium) and Tantalum in Canada, by K.R. Dawson, 157p., illus., tables, figures. Accompanied by Map 1354A, scale 1:5,000,000 with inset maps (published 1974).
Paper 73-5	National Advisory Committee on Research in the Geological Sciences. Current Research in the Geological Sciences in Canada, 1972-73, compiled by T.E. Bolton, 193p. (published 1973, released 1974).
Paper 73-22	A Catalogue of Canadian Minerals - Supplement I, by R.J. Traill, 260p. (published 1974). This publication is a supplement to GSC Paper 69-45.
Paper 74-1 Part A	Report of Activities, Part A: April to October 1973, 396p. (published 1974).
Paper 74-4	Abstracts of Publications in Scientific Journals by Officers of the Geological Survey of Canada, April 1973 to March 1974, 30p. (published 1974).
Paper 74-5	National Advisory Committee on Research on the Geological Sciences-Current Research in the Geological Sciences in Canada, 1973-74, compiled by T.E. Bolton, 95p. (published 1974).
Catalogue No.M41-4/5	Catalogue of Type Invertebrate Fossils of the Geological Survey of Canada, Volume V, by T.E. Bolton, 396p. (published 1974).

Map 1-1974	Scientific Program, 1974-75 (includes list of projects, published 1974).
Map 900A	Principal Mineral Areas of Canada, 24th edition (published 1974). Also available in French.
Map 1363A	Geology, Arnprior, Ontario, Lat. 45°15'-45°30', Long. 76°00'-76°30', NTS Sheet 31 F/8, scale 1:50,000 (published 1974),
Index Sheet 31	Index Sheet NTS 31, showing published geological maps, information to March 31, 1974. Lat. 44°00'-48°00', Long. 72°00'-80°00' (published 1974).
Index Sheet 41	Index Sheet NTS 41 showing published geological maps, information to July 3, 1973. Lat. 44°00'-48°00', Long. 80°00'-88°00' (published 1973, released 1974).
O.F.202	Listing of Selected ERTS Images. A listing of 600 quality satellite images. Enquiries for information on specific NTS areas may be made to the librarian at the Geological Survey of Canada, 601 Booth St., Ottawa, K1A 0E8. Copies of the open file will not be available for sale.

RECENT PUBLICATIONS:

Northern Miner

1973a: Beaver Mining Plans (article); The Northern Miner, Vol.59, No.30, Oct. 11, p.8.

1973b: Beaver Markets Calcite (article); The Northern Miner, Vol.59, No.41, Dec. 27, p.7.

1974a: Beaver Eyes Market for Calcium Carbonate (article); The Northern Miner, Vol.60, No.9, May 16, p.26.

1974b: Beaver Buys Controlling Interest in Burcal Industrial Minerals (article); The Northern Miner, Vol.60, No.17, July 11, p.26.

1974c: Beaver Subsidiary Reject Credit Offer (article); The Northern Miner, Vol.60, No.21, Aug. 8, p.21.

1974d: Indusmin Boosts Production at Nepheline Syenite Plant (article); The Northern Miner, Vol.60, No.38, Dec. 5, p.13.

1974e: Indusmin to Spend $1 m. on Nepton Complex Expansion Program (article); The Northern Miner, Vol.60, No.32, Oct. 24, p.3.

1974f: Golden Giant Plans to Unwater Shaft, Drill (article); The Northern Miner, Vol.60, No.21, Aug. 8, p.2.

1974g: Biron Bay Explores Iron Prospect (article); The Northern Miner, Vol.60, No.33, Oct. 31, p.11.

Table 23 Summary of Assessment Work Recorded in 1973 and 1974

Algonquin Region

Activity	No. of Days 1973	Assessment Credit 1974
Ontario Land Survey	---	280
Diamond Drilling	5,516	8,582
Core Samples	17	147
Manual Labour	2,221	2,737
Power Equipment	410	618
Geophysical Surveys	520	1,463
Geological Surveys	460	1,511
Geochemical Surveys	1,810	---
Other Expenditures	35	221
	10,989	15,559

Table 24 Assessment Work Received in 1974

Algonquin Region

Abbreviations

DDH - Diamond Drill Hole(s)
Geol. Mapping - Geological Mapping
ST - Stripping
TR - Trenching
Mag. - Magnetic Survey
EM - Electromagnetic Survey

County	Township	Ownership (Optionee)	Type of Data	Commodity Sought	Year Work Performed	File No.
Haliburton	Cardiff (Faraday)	Carday Uranium Mines Ltd.	Geol. Mapping Radiometric Survey	Uranium	1974	Cardiff 140 (2.1569)*
Haliburton	Cardiff	Carday Uranium Mines Ltd.	5 DDH (1291')	Uranium	1974	Cardiff 141
Haliburton	Cardiff	J.R. Wilson 26 Carluke Cr., Apt. 303, Willowdale, Ontario	ST/TR	Uranium	1973	Cardiff 142
Haliburton	Glamorgan	S.W. Evans; Mandarin Mines Ltd. (Imperial Oil Ltd.)	8 DDH (1358')	Uranium	1974	Glamorgan 10
Haliburton	Glamorgan	S.W. Evans; Mandarin Mines Ltd. (Imperial Oil Ltd.)	Geol. Mapping	Uranium	1974	Glamorgan 11 (2.1533)*
Haliburton	Monmouth	Imperial Oil Ltd.	3 DDH (643')	Uranium	1974	Monmouth 56
Haliburton	Monmouth	Imperial Oil Ltd.	2 DDH (508')	Copper, Nickel	1974	Monmouth 57
Haliburton	Monmouth (Glamorgan)	Reginald S. Brooks (Imperial Oil Ltd.)	Radiometric Survey	Uranium	1973	Monmouth 58 (2.1388)*
Haliburton	Monmouth	Imperial Oil Ltd.	Geol. Mapping	Uranium	1973	Monmouth 59 (2.1481)*
Haliburton	Monmouth	Thomas J. Czuppon 55 Ellerslie Ave., Suite 1806 Willowdale, Ontario	ST		1974	Monmouth 60
Haliburton	Monmouth	Imperial Oil Ltd.	Radiometric Survey	Uranium	1974	Monmouth 61 (2.1540)*
Haliburton	Monmouth	Imperial Oil Ltd.	Radiometric Survey	Uranium	1973	Monmouth 62 (2.1534)*
Haliburton	Monmouth (Glamorgan)	Reginald S. Brooks (Imperial Oil Ltd.)	Geol. Mapping	Uranium	1974	Monmouth 63
Hastings	Faraday	J.R. Wilson 26 Carluke Cr., Apt. 303, Willowdale, Ontario	ST/TR	Uranium	1974	Faraday 44
Hastings	Faraday	J.R. Wilson 26 Carluke Cr., Apt. 303, Willowdale, Ontario	ST/TR	Uranium	1973	Faraday 45
Hastings	Faraday	W.D. Cameron R.R. #3 Coe Hill, Ontario	ST/TR	Uranium	1974	Faraday 46
Hastings	Faraday	R.M. Stewart 25 Butterworth Ave. Scarborough, Ontario	ST/TR	Uranium	1974	Faraday 47

County	Township	Ownership (Optionee)	Type of Data	Commodity Sought	Year Work Performed	File No.
Hastings	Faraday	J.R. Wilson 26 Carluke Cr., Apt. 303, Willowdale, Ontario	ST/TR	Uranium	1974	Faraday 48
Hastings	Faraday	R.M. Stewart 25 Butterworth Ave. Scarborough, Ontario	ST/TR	Uranium	1974	Faraday 49
Hastings	Faraday	J.R. Wilson 26 Carluke Cr., Apt. 303, Willowdale, Ontario	ST/TR	Uranium	1973 1974	Faraday 50
Nipissing	Butt	Noranda Exploration Co. Ltd.	Geological Survey	Graphite	1974	Butt 3 (2.1604)*
Parry Sound	Ferrie	E.T. Jones 481 Thurston Road Rochester, New York	Manual Labour 3 DDH (120')	Copper	1974	Ferrie 4
Parry Sound	Ferrie	E.T. Jones 431 Thurston Road Rochester, New York	3 DDH (103')	Copper	1974	Ferrie 5
Parry Sound	McKellar	Burcal Industrial Minerals Ltd.	12 DDH (1841')	Calcium Carbonate	1974	McKellar 1
Peterborough	Anstruther (Burleigh)	Camindex Mines Ltd.	Mag., EM	Uranium	1973	Anstruther 41 (2.1415)*
Peterborough	Anstruther	Camindex Mines Ltd.	Mag., EM	Uranium	1973	Anstruther 42 (2.1416)*
Peterborough	Anstruther	Camindex Mines Ltd.	3 DDH (1228')	Uranium	1969	Anstruther 43
Peterborough	Anstruther	Camindex Mines Ltd.	Core Assays	Uranium	1967	Anstruther 45 (2.1491)*
Peterborough	Methuen	W.A. Brown et al. (Trent River)	Core Samples	Iron-Titanium	1970 - 1974	Methuen 5, 7, 9, 10, 12, 15
Peterborough	Methuen	Indusmin Ltd.	Land Survey	Nepheline Syenite	1974	Methuen 16
Peterborough	Methuen	Mr. M.R. Tripp R.R. #2 Port Perry, Ontario	10 DDH (1707.5')	Base Metals, Gold	1974	Methuen 17
Renfrew	Blithfield	Nickolas Axiotis 8391 Brookwood Dr. N.E. Warren, Ohio 44484	TR		1973	Blithfield 9
Renfrew	Brougham	Duncan E. Stewart R.R. #3 Arnprior, Ontario	Land Survey	Nepheline Syenite		Brougham 8
Renfrew	Head	James Desjardins MacKey Sta., Ontario	ST/TR			Head 1
Renfrew	Lyndoch	James A. Bryan 15 Hollis Ct. Bramalea, Ontario	1 DDH (248.5')	Copper	1974	Lyndoch 5

* ASSESSMENT FILE NO. IN TORONTO

Table 25 Data Received from The Ontario Securities Commission in 1974

Algonquin Region

Township	Regional File No.	Company (Optionee)	Commodity Sought	Report
Cardiff (Monmouth, Cavendish)	139	Amalgamated Rare Earth Mines Ltd. (Imperial Oil Ltd.)	Uranium	O.S.C. Prospectus
Anstruther	44	Biron Bay Gold Mines Ltd.	Iron	O.S.C. Prospectus and Report
Cardiff	138	Carday Uranium Mines Ltd.	Uranium	O.S.C. Prospectus and Report

1974 REPORT
# of the
EASTERN REGIONAL GEOLOGIST

by

M.A. Klugman

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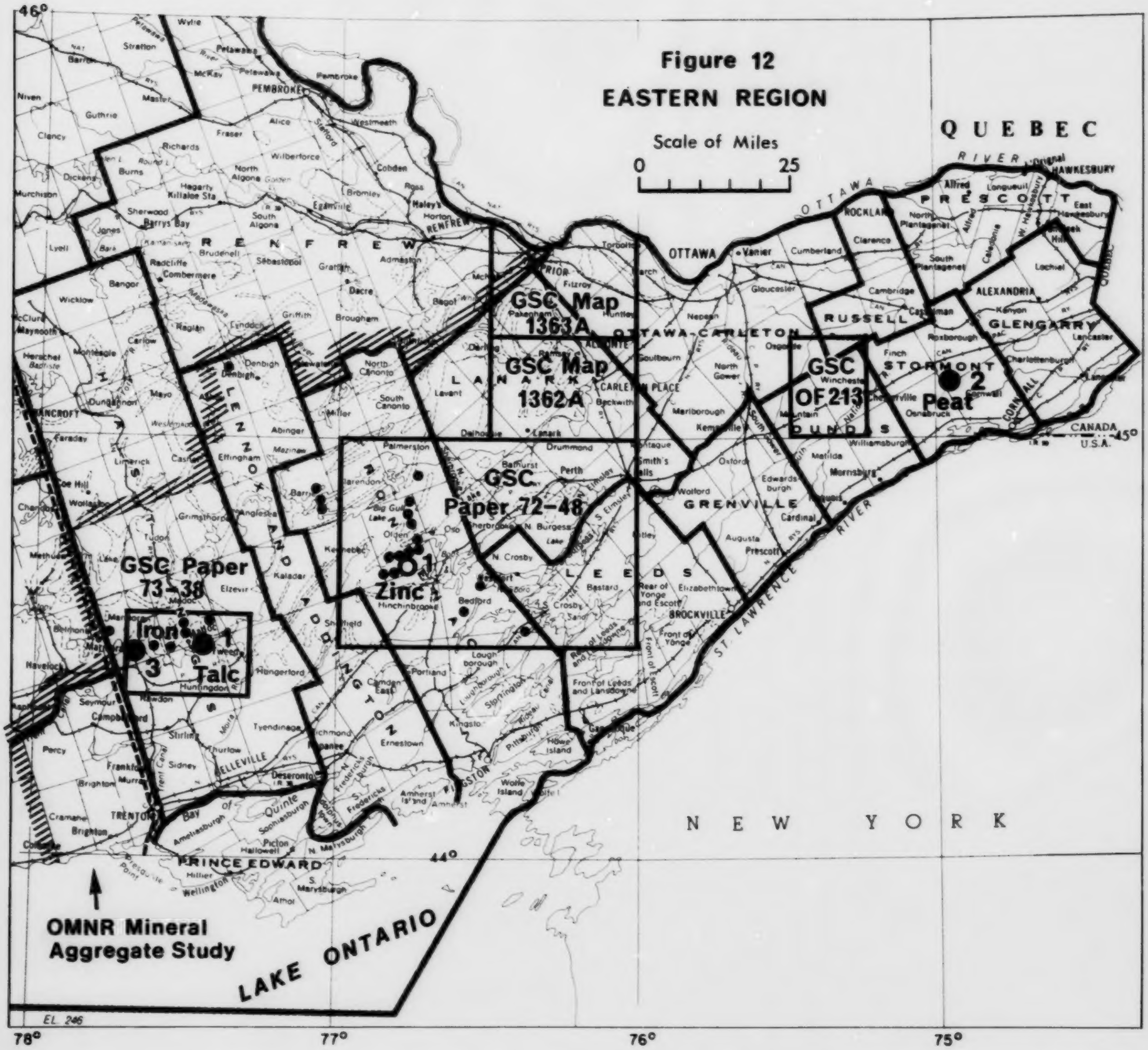

Figure 12
EASTERN REGION

Scale of Miles
0
25
QUEBEC
NEW YORK
LAKE ONTARIO
OTTAWA RIVER
ST. LAWRENCE RIVER
RENFREW
LANARK
OTTAWA-CARLETON
RUSSELL
PRESCOTT
GLENGARRY
STORMONT
DUNDAS
GRENVILLE
LEEDS
FRONTENAC
LENNOX AND ADDINGTON
HASTINGS
PRINCE EDWARD
OTTAWA
PEMBROKE
RENFREW
BROCKVILLE
KINGSTON
BELLEVILLE
TRENTON
HAWKESBURY
ALEXANDRIA
CORNWALL
BANCROFT
GSC Map 1363A
GSC Map 1362A
GSC OF 213
GSC Paper 72-48
GSC Paper 73-38
1 Zinc
1 Talc
2 Peat
3 Iron
OMNR Mineral Aggregate Study
46°
45°
44°
78°
77°
76°
75°
CANADA
U.S.A.
EL 246

EXPLANATION

- ● Producing Mines (excepting stone quarries, clay, sand, gravel and silica extractive operation)
  1. Canada Talc Industries Limited
  2. Diamond Peat Moss
  3. Marmoraton Mining Company
- ○ Mine Terminating Operations
  1. Lynx-Canada Explorations Limited-Canadian Reynolds Metals Company Limited (Long Lake mine)
- • Assessment Work Files Received in 1974

New Maps and/or Reports with number
——— GSC - Geological Survey of Canada
- - - - - OMNR - Ontario Ministry of Natural Resources
▨ Boundary of Eastern Region

1974 REPORT

# of the

EASTERN REGIONAL GEOLOGIST

by

M.A. Klugman[1]

INTRODUCTION: The Eastern Region geological office was established in mid-August, 1974 at Kemptville. The assessment files for the Eastern Region were transferred from Toronto to Kemptville during 1974.

Much of the writer's time was spent on engineering geology with particular emphasis on the stability problems connected with the Champlain Sea clays. In this respect the writer would like to express his thanks to members of the Geological Survey of Canada especially Dr. N.R. Gadd, Dr. R.J. Mitchell of Queen's University and W.J. Eden of the National Research Council of Canada for their invaluable help and patience in making available information pertaining to the clays and their patience in educating the writer on the subject.

The writer would also like to express his thanks to S.J. Gibson for her assistance in preparing this report.

Another large portion of the writer's time was spent in working with and providing geological information for Ministry programs in the Region, such as land use planning, parks and resource areas.

Time was also spent with prospectors and mining companies in connection with mineral exploration and development, particularly in the Grenville Province.

ENGINEERING GEOLOGY: Very soon after the establishment of the Regional office, it became very obvious that service to the public in the field of engineering geology was required. The eastern half of the Region is underlain by Champlain Sea clays, which in the main have been mapped by officers of the Geological Survey of Canada. Geologists of the Geological Branch, Ontario Division of Mines have mapped the area adjacent to the Quebec border and the Merrickville area (Gwyn and Thibault 1974; Gwyn and Lohse 1973;

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[1] Regional Geologist, South Boundary Road, Kemptville, K0G 1J0.

Sharpe 1974). Some of these clays exhibit unique characteristics for which they are termed "quick clays" or "sensitive clays" and, because of their "sensitivity", are prone to landslide activity. The sensitivity of a clay is the ratio of its undisturbed strength to its remoulded strength at the natural water content. According to Crawford (1968) these clays usually have a sensitivity greater than 20 although flow slides have occurred in clays with a sensitivity of less than 10 (Mitchell and Markell 1974). The common denominator in the landslides is apparently the high sensitivity because the degree of consolidation and plasticity has shown considerable range, from normal consolidation to over-consolidation and from weakly plastic to a plasticity index of 40, respectively (Eden and Mitchell 1973). The one outstanding characteristic is that sensitive clays have the tendency to transform from a relatively brittle material to a liquid mass when disturbed. Caution should therefore be exercised in all construction in sensitive clay areas and competent engineers consulted before construction begins.

A considerable amount of work has been carried out on the study of these clays, principally by the Geological Survey of Canada and the National Research Council of Canada, and considerably more work is necessary before the phenomenon will be fully understood. To this end a round table seminar was held during the year at which most of the people connected with sensitive clay studies were present. The purpose of the meeting was to review the state of the knowledge of the sensitive clay studies. Although there are still many gaps in the knowledge of this phenomenon, there is much information available which can be utilized in planning and conservation at the present time. A major role of this office is to make available this information to the pertinent planning authorities and direct them, when necessary, to experts in the particular problems, in order to alleviate the loss and damage to property and lives and to avoid prohibitive unnecessary costs, as far as is possible. It is also intended to compile as complete a file as possible on the sensitive clay problem, including locations of previous landslides and to delineate as far as possible, as more information becomes available, potential hazardlands, for the use of all pertinent authorities.

In many cases it is possible to take preventative or precautionary measures to enable development in questionable areas. An important role of this office is to determine whether recommendations by competent engineering consultants have been followed.

GEOLOGICAL BRANCH ACTIVITIES: In the Eastern Region, field projects were carried out by the Phanerozoic Geology Section of the Geological Branch and dealt with Quaternary geology and aggregate resource surveys. Q.H.J. Gwyn carried out a survey of the Quaternary geology and industrial mineral resources of the Hawkesbury, Huntingdon, Lachute and Vaudreuil areas. This was a continuation of the program in the adjacent Alexandria area carried out in 1973. D.R. Sharpe also began a Quaternary geology and aggregate resource survey in the Merrickville area. The writer had the opportunity to spend several days in the field with each survey party, which greatly facilitated his familiarization with the area. He also had the opportunity in company with D.R. Sharpe, to spend a day in the field with members of the Geological Survey of Canada in the areas being mapped by S.H. Richard of the Geological Survey of Canada.

During 1974, four aggregate mineral resource surveys were undertaken in the Eastern Region. J.Z. Fraser surveyed the United Counties of Prescott and Russell; South Leeds Planning Area; and Northumberland County. E.V. Sado and M.A. Vos surveyed the surficial and bedrock aggregate potential of The Regional Municipality of Ottawa-Carleton. These surveys are used to facilitate planning in the various planning areas and to determine the location of aggregate resources. The writer is working with the planners in formulating the master plans of these areas.

E.B. Freeman of the Geoscience Information Office, Geoservices Section, presented basic mineral exploration courses in Belleville (registration 127, average attendance 89), Perth (registration 80, average attendance 52) and Ottawa (registration 193, average attendance 158). The practical fieldwork course at Madoc had 19 participants in the first four-day session and 18 participants in the second session. E.B. Freeman also presented programs as both Junior Ranger camps in the Eastern Region (Lanark and La Rose) and at schools in Sharbot Lake and Belleville. He led a field trip for geography teachers to Prince Edward County.

GEOLOGICAL SURVEY OF CANADA ACTIVITIES: Recent field activities of the Geological Survey of Canada are summarized in several reports and are shown on an index map (see list of GSC publications in this report). Investigation continued on a uranium showing in the Paleozoic rocks in March Township near Ottawa. Geochemical dispersion about the showing was studied. New radioactive occurrences in the Precambrian Shield west of Ottawa were reported. The brannerite-gold association at the Richardson gold mine at Eldorado in Madoc Township was also studied further. As discussed earlier in this report, studies of sensitive clays are in progress. Recent surveys also include environmental geology and surficial geology of the Ottawa-Hull area, surficial geology of the Kingston-Trenton area, surficial geology of the Morrisburg-Winchester area, and a seismic survey of the Wellington bay-mouth bar in Prince Edward County.

MINING ACTIVITY: Long Lake zinc mine, owned jointly by Lynx-Canada Explorations Limited and Canadian Reynolds Metals Company Limited, ceased operations in November 1974 after 20 months of operation, because of depleted ore reserves. In 1974, 25,000 tons of zinc concentrate containing 9,768,000 pounds of zinc were shipped to St. Joe Minerals Corporation, Balmat, New York.

The only other major change in status occurred in the cement industry. Canada Cement Lafarge Limited closed its plant at Point Anne and now operates only the plant at Bath. The Point Anne plant has been taken over by Consolidated Sand and Gravel Limited but is not as yet operating. The other cement producers are Lake Ontario Cement Company Limited, operating at Picton and St. Lawrence Cement Company Limited, which quarries at Ogden Point for a plant at Clarkson.

Marmoraton Mining Company at Marmora, a subsidiary of Bethlehem Steel Corporation produces 500,000 tons of iron ore pellets per year, grading 65 per cent iron.

Canada Talc Industries Limited, located at Madoc, produces 30,000 tons of talc per year. This mine is the only Ontario talc producer.

Diamond Peat Moss operates in the United Counties of Stormont, Dundas and Glengarry.

Sand and gravel, limestone, trap, sandstone, marble, shale, and clay are other mineral products from the Region.

EXPLORATION ACTIVITY: Exploration activity increased in the Eastern Region during 1974. In the Region 175 claims were recorded as compared to 92 claims recorded in 1973.

The total credit for assessment work for the Eastern Region showed a decrease of 32 percent over the previous year. Table 26 compares days of assessment work credit for 1973 and 1974 for the Eastern Region.

TABLE 26 SUMMARY OF ASSESSMENT WORK RECORDED IN 1973 AND 1974

Eastern Region

	Number of Days Assessment Credit	
	1973	1974
Diamond Drilling	3,042	2,719
Core Samples	16	4
Manual Labour	--	6
Power Equipment	--	94
Geophysical Surveys	1,620	514
Geological Surveys	480	--
Section 86(18) (Expenditures)	--	180
TOTAL	5,158	3,517

Known exploration activity during 1974 is listed in Table 27. Most activity was directed toward base metals, gold, uranium, and industrial minerals. A renewed interest in gold was noticed in the Region. A list of assessment files received in the Regional Geologist's Office during the year is given in Table 28.

RECOMMENDATIONS FOR EXPLORATION: With the rapid recent increase in the price of gold, the Grenville Province represents a pregnant area for renewed exploration for that metal. Many known occurrences of gold mineralization in Clarendon and Barrie Townships, Frontenac County; Kaladar and Anglesea Townships, Lennox and Addington County; and Grimsthorpe, Elzevir, Tudor, Madoc, Lake and Marmora Townships, Hastings County, warrant attention at this time. With better exploration tools and more advanced mining technology, the old shallow mines represent excellent targets as a focus for more widespread exploration. Old gold-mining camps in Canada and other parts of the world are attracting a great deal of exploration with some success.

With respect to base metals, the Grenville Province has long been known as a well mineralized area. With the continually increasing demand for base metals and the growing need for self-sufficiency, the Grenville Province represents a potential producing area that is easily accessible and already has much of the very costly and necessary infrastructure developed. It is of note that there is already an increasing interest in this area as a source of base metals.

Industrial mineral consumption is also on the increase, and while exploration and development of industrial minerals in the Eastern Region has been continuing for some time as evidenced, for example, by the talc production at Madoc and the recent discovery of a significant tremolite-talc deposit in Palmerston Township. The potential of high grade silica from the Potsdam Formation has not recently been explored. With today's economic factors and transport costs, the viability of silica production in the Eastern Region should very seriously be considered. Other minerals such as fluorite, high purity marble and vermiculite, should also be investigated.

With the depletion of the magnetite ore-body at Marmora seen in the not too distant future, efforts to locate additional magnetite deposits should be made. Marmoraton Mining Company, along with other companies, is already examining other occurrences of magnetite in the area.

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Map 2229	Index to Aeromagnetic Maps of Ontario, Revised 1974. Scale 1 inch to 30 miles or 1:1,900,800.
Map 2310	Ontario Mineral Map, compilation by the Geological Branch, Ontario Division of Mines, Revised 1974. Scale 1 inch to 25 miles or 1:1,584,000.
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MP59	Summary of Field Work, 1974, by the Geological Branch (30, 31, 32, 40, 41, 42, 52). Edited by V.G. Milne, D.F. Hewitt, and K.D. Card, 206p., plus various figures and key maps.

OTHER ONTARIO MINISTRY OF NATURAL RESOURCES PUBLICATIONS ISSUED IN 1974:

Mineral Aggregate Study	Mineral Aggregate Study, Central Ontario Planning Region, prepared for the Ontario Ministry of Natural Resources by Proctor and Redfern Limited, Consulting Engineers and Planners, 11 chapters, 6 appendixes, illustrations, supplement.
	Toward the year 2000: A Study of Mineral Aggregates in Central Ontario, prepared for the Ontario Ministry of Natural Resources by Proctor and Redfern Limited, Consulting Engineers and Planners. A Summary Report which is a supplement to the Mineral Aggregate Study or available separately.
	Report of the Advisory Committee to the Minister of Natural Resources on the Revision of the Mining Act, 40p.
1973 Review	Ontario Mineral Review 1973, 136p., with various tables, figures, and photographs.

MAPS AND REPORTS ISSUED BY THE GEOLOGICAL SURVEY OF CANADA IN 1974:

Econ. Geol. Report No.29	Niobium (Columbium) and Tantalum in Canada, by K.R. Dawson, 157p., illus., tables, figures. Accompanied by Map 1354A, scale 1:5,000,000 with inset maps (published 1974).
Paper 72-48	Surficial Geology of Kingston (N½) Map-Area, Ontario, by E.P. Henderson, 6p. Accompanied by Maps 7-1972 and 8-1972, scale 1:125,000 (published 1973, released 1974).
Paper 73-2	Age Determinations and Geological Studies - K-Ar Isotopic Ages, Report 11, by R.K. Wanless, R.D. Stevens, G.R. Lachance and R.N. Delabio, 139p., figures (published 1973, released 1974).
Paper 73-5	National Advisory Committee on Research in the Geological Sciences. Current Research in the Geological Sciences in Canada, 1972-73, compiled by T.E. Bolton, 193p. (published 1973, released 1974).
Paper 73-7	Geological Survey of Canada, Radiocarbon Dates XIII, by J.A. Lowdon and W. Blake, Jr., 61p. (published 1973, released 1974).
Paper 73-22	A Catalogue of Canadian Minerals-Supplement I, by R.J. Traill, 260p. (published 1974). This publication is a supplement to GSC Paper 69-45.
Paper 73-38	Research in Geochemical Prospecting Methods for Fluorite Deposits, Madoc Area, Ontario, by J.P. Lalonde, 56p., tables, figures (published 1974).
Paper 71-1 Part A	Report of Activities, Part A: April to October 1973, 396p. (published 1974).
Paper 74-1 Part B	Report of Activities, Part B: November 1973 to March 1974, 297p. (published 1974).
Paper 74-4	Abstracts of Publications in Scientific Journals by Officers of the Geological Survey of Canada, April 1973 to March 1974, 30p. (published 1974).

Paper 74-5	National Advisory Committee on Research on the Geological Sciences-Current Research in the Geological Sciences in Canada, 1973-74, compiled by T.E. Bolton, 95p. (published 1974).
Map 1-1974	Scientific Program, 1974-75 (includes list of projects, published 1974).
Map 900A	Principal Mineral Areas of Canada, 24th edition (published 1974). Also available in French.
Map 1362A	Geology, Carleton Place, Ontario, compiled by E.W. Reinhardt, 1972. Lat. 45°00'-45°15', Long. 76°00'-76°30', NTS Sheet 31 F/1, scale 1:50,000 (published 1973).
Map 1363A	Geology, Arnprior, Ontario, Lat. 45°15'-45°30', Long. 76°00'-76°30', NTS Sheet 31 F/8, scale 1:50,000 (published 1974).
Index Sheet 31	Index Sheet NTS 31, showing published geological maps, information to March 31, 1974. Lat. 44°00'-48°00', Long. 72°00'-80°00' (published 1974).
O.F.202	Listing of Selected ERTS Images. A listing of 600 quality satellite images. Enquiries for information on specific NTS areas may be made to the librarian at the Geological Survey of Canada, 601 Booth St., Ottawa, K1A 0E8. Copies of the open file will not be available for sale.
O.F.213	Surficial Geology Map, Winchester, Ontario. Preliminary draft of a surficial geology map of NTS 31 G/3 W½, by S.H. Richard, scale 1:50,000.

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1968: Quick Clays of Eastern Canada; Engineering Geol., Vol.2, No.4, p.239-265.

Eden, W.J., and Mitchell, R.J.
1973: Landslides in Sensitive Marine Clay in Eastern Canada; Highway Res. Record No. 463, p.18-27.

Gwyn, Q.H.J. and Lohse, H.
1973: Quaternary Geology of the Alexandria Area, Southern Ontario; p.181-184 in Summary of Field Work, 1973, by the Geological Branch, edited by V.G. Milne, D.F. Hewitt, and W.J. Wolfe, Ontario Div. Mines, MP56, 202p.

Gwyn, Q.H.J. and Thibault, J.J.L.
1974: Quaternary Geology of the Hawkesbury, Huntingdon, Lachute and Vaudreuil Areas; p.178-182 in Summary of Field Work, 1974, by the Geological Branch, edited by V.G. Milne, D.F. Hewitt and K.D. Card, Ontario Div. Mines, MP59, 206p.

Mitchell, R.J. and Markell, A.R.
1974: Flowsliding in Sensitive Soils; Canadian Geotech. J., Vol.11, No.1, p.11-31.

Sharpe, D.R.
1974: Quaternary Geology of the Merrickville Area, Southern Ontario; p.183-185 in Summary of Field Work, 1974, by the Geological Branch, edited by V.G. Milne, D.F. Hewitt and K.D. Card, Ontario Div. Mines, MP59, 206p.

Table 27

Exploration Activity in 1974

(Compiled from Assessment Files)
Eastern Region
Abbreviations
EM-Electromagnetic Survey; Mag-Magnetometer Survey

Company or Individual	Township	Type of Work	Commodity Sought
C. C. Allen (Labrador Mining and Exploration Co. Ltd.)	Ashby	Bulk sampling and testing	Garnet
Beth-Canada Mining Company	Bedford	Drilling	Copper, Zinc, Lead
G. W. Bryans	Barrie	Drilling; Trenching; stripping	Base Metals
Campbell Fox (Sudbury Contact Mines Ltd.)	Marmora	Drilling	Gold,Silver,Copper,Nickel Zinc, Arsenic
W. H. Douglas	Bedford	Drilling	Iron, Nickel
Mid South Explorations Ltd.	Olden	Drilling	
Phelps-Dodge Corporation of Canada Ltd.	Bedford	Airborne EM & MAG	Base Metals.

Table 28

Assessment Work Received in 1974

Eastern Region

Abbreviations

DDH-Diamond Drill Hole
GC-Geochemical Survey
EM-Electromagnetic Survey
Mag-Magnetometer Survey
SP - Self Potential Survey

COUNTY	TOWNSHIP	OWNERSHIP (Optionee)	TYPE of DATA	COMMODITY	Year Work Performed	FILE NO.
Frontenac	Barrie	G.W. Bryans	2 DDH (41')	Pb,Zn	1974	Barrie 24
Frontenac	Barrie	G.W. Bryans	1 DDH(96') Trench.	Pb,Zn	1974	Barrie 25
Frontenac	Barrie	G.W. Bryans	Drilling,Stripping	Base Metals	1974	Barrie 26
Frontenac	Bedford	W.H. Douglas	1 DDH (581')	Base Metals	1974	Bedford 8
Frontenac	Bedford	Beth-Canada Mining Co.	9 DDH (463')	Cu,Pb,Zn	1973	Bedford 9
Frontenac	Bedford	Phelps-Dodge Corp. of Canada Ltd.	Airborne EM & Mag.	Base metals	1974	Bedford 10 (2.1482)*
Frontenac	Olden	Lynx-Canada Explorations Ltd.	GC-SP	Zn	1973	Olden 17 (2.1253)
Frontenac	Olden	Mid South Explorations Ltd.	1 DDH (117.5')		1974	Olden 18
Frontenac	Olden	Kathleen Sullivan	17 DDH (1,428')		1955	Olden 19**
Frontenac	Olden	Kathleen Sullivan	4 DDH (944')		1960	Olden 20**
Frontenac	Olden	Kathleen Sullivan	2 DDH (324')		1963	Olden 21**
Frontenac	Olden	R.G. Lalonde	6 DDH (1,414.5')		1955	Olden 22**
Frontenac	Olden	H.G. Quinn	4 DDH (163')		1957	Olden 23**
Frontenac	Olden	Stewart R. McEwen	1 DDH (41')		1957	Olden 24**
Frontenac	Olden	Iso Uranium Mines Ltd.	13 DDH (892')	U	1957	Olden 25**
Frontenac	Olden	Sharbot Lake Mines Ltd.	1 DDH (198')	Base Metals	1957	Olden 26**
Frontenac	Olden	George H. Johnson	3 DDH	Cu,Ni	1959	Olden 27**
Frontenac	Olden	Cremac Surveys Co.Ltd.	1 DDH (236')	Ni,Au	1959	Olden 28**
Frontenac	Palmerston	Ram Petroleums Ltd.	1 DDH (256')	Tremolite-Talc	1973	Palmerston 9
Hastings	Madoc	Earl Sager	1 DDH (388')	Base Metals	1973	Madoc 20
Hastings	Madoc	Freeport Canadian Exploration Co.	1 DDH (348')	Cu,Zn,Ni	1973	Madoc 21
Hastings	Madoc	Freeport Canadian Exploration Co.	1 DDH (563')	Cu,Zn,Au	1973	Madoc 22
Hastings	Madoc	Earl Sager	1 DDH (377')	Cu,Zn	1973	Madoc 23
Hastings	Marmora	Campbell Fox	11 DDH (1341')	Au,Ag,Cu,Ni,Zn,As	1974	Marmora 7
Hastings	Marmora	C. Roger Young	2 DDH (654')	Fe,Ni	1959	Marmora 8**

* Numbers given in parentheses are those of the Assessment Files Research Office, Toronto.

** Reports of previously submitted work, added to Regional Geologist's files during 1974.

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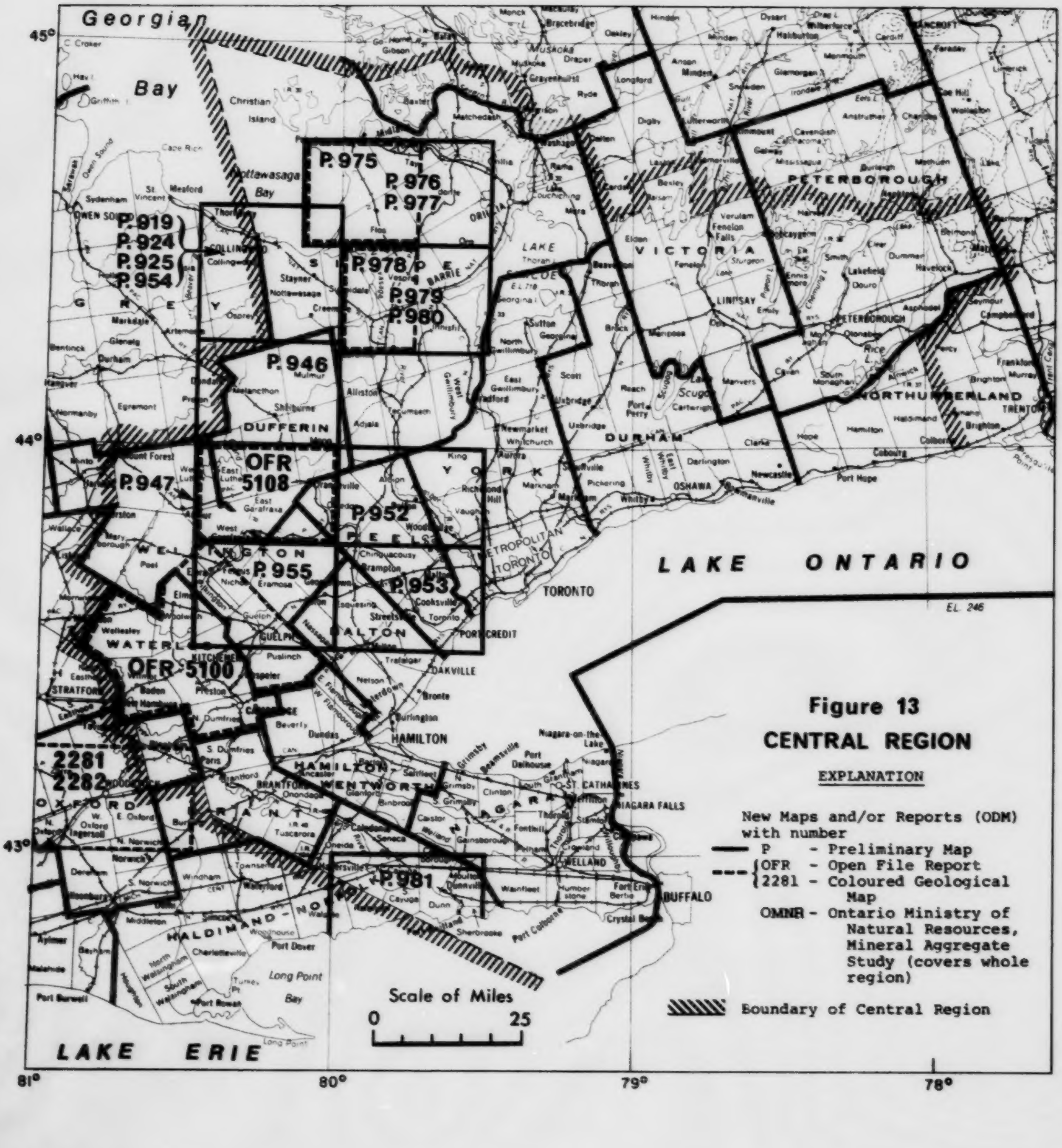

Figure 13
CENTRAL REGION

EXPLANATION
New Maps and/or Reports (ODM) with number
P - Preliminary Map
OFR - Open File Report
2281 - Coloured Geological Map
OMNR - Ontario Ministry of Natural Resources, Mineral Aggregate Study (covers whole region)
Boundary of Central Region
Scale of Miles
0
25
P. 975
P. 976
P. 977
P. 919
P. 924
P. 925
P. 954
P. 978
P. 979
P. 980
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P. 947
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P. 955
P. 953
OFR 5100
2281
2282
P. 981
Georgian Bay
LAKE ONTARIO
LAKE ERIE
GREY
DUFFERIN
SIMCOE
YORK
PEEL
HALTON
WELLINGTON
WATERLOO
OXFORD
BRANT
HAMILTON-WENTWORTH
HALDIMAND-NORFOLK
NIAGARA
METROPOLITAN TORONTO
DURHAM
VICTORIA
PETERBOROUGH
NORTHUMBERLAND
TORONTO
HAMILTON
BUFFALO
45°
44°
43°
81°
80°
79°
78°

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B.W. Patten[1]

REGIONAL GEOLOGIST'S ACTIVITIES: U.J. Vagners[2] devoted most of his time during the calendar year to providing geological information for Ministry programs in the Central, Algonquin, and Southwestern Regions, aided by B.W. Patten, Geological Assistant, who began work in May, 1974. Administrative duties included budget estimating, goal setting and review exercises and setting out a multi-year plan. Requests from the public for mining and geological information, including an inquiry regarding dolomite exploration in the Brant-Haldimand area, were answered by B.W. Patten. A talk on mineral resources was given at Bayview Secondary School in the fall by U.J. Vagners.

Within the Ministry of Natural Resources, the main activity was working with the Division of Lands, the Division of Parks, the Conservation Authorities Branch, and the Division of Mines. Geological information was provided to the Division of Lands for projects such as: the Puslinch Crown Resource Management Area; a proposal for Port Aberdeen Resort Complex; a subdivision proposal in Bechtels Tract in Kitchener; a rezoning proposal in Georgina Township; a review of Guidelines for Lake Planning; the Speyside Quarry proposal; the Oak Ridges Moraine Planning Area; the Niagara Escarpment Planning Area (re: Pit and Quarry Restrictive Zone, Development Planning Zone); the Professor's Lake subdivision proposal; a review of the Southern Ontario Strategic Land Use Plan; and the King Paving and Materials Limited zoning amendment in Oneida Township.

Aid was given to the following Conservation Authorities: Grand River; Otonabee; Metro Toronto; Credit Valley; Halton Region; Hamilton and Region; and Nottawasaga. Reviews of park masterplans were made for Credit Forks and Mono Cliffs parks; tufa samples were collected for display purposes for Huronia Historical Sites. Also in Huronia administrative district, work was done towards a total resources management on the Copeland Property.

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[1] Regional Geologist's Assistant.

[2] Regional Geologist, Ontario Ministry of Natural Resources, 10670 Yonge St., Richmond Hill, L4C 3C9.

Work was done for the Division of Mines on the following projects: the Mineral Resources Program for the Central Region; providing data for the Ontario Mineral Map (ODM Map 2310); boulder tracing in the Matheson area of northern Ontario; mapping the Quaternary geology of the Lucan map-area; and compiling technical data from the Geophysics/Geochemistry Section of the Geological Branch. The "Students Working on Resource Development" summer student, Ivars Kopstals, compiled earth science data to be used in mineral resource evaluation in the Central Region utilizing field work and literature research. B. Patten composed geological reference lists for the administrative districts in Central and Algonquin Regions and for the Niagara Escarpment Planning Area in Central and Southwestern Regions.

Within the Ministry, various meetings were attended: Regional and Resident Geologists and Geological Branch Section Chiefs; Geologists' Technical Committee; Mines Technical Committee; Regional Management Committee; and the Oak Ridges Moraine Committee. Two field trips were attended with the Phanerozoic Geology Section of the Geological Branch, and a tour was made of the Ontario Centre for Remote Sensing.

Outside the Ministry of Natural Resources, the staff of this office cooperated on various projects with other organizations such as the Ministry of Treasury, Economics and Intergovernmental Affairs, the Ministry of Transportation and Communications, the Ministry of the Environment, and the Hydro-Electric Power Commission of Ontario.

Consultation was provided to the Regional Municipalities of Peel, Halton, Waterloo, Durham, and York, mainly regarding mineral resources planning, as well as problems involving the control of pits and quarries. Meetings of the Niagara Escarpment Commission and the Interministry Committee on Control of Topsoil Removal were attended. U.J. Vagners continued work on the Man and Resources program, organized by the federal and provincial Governments, after attending the conference in 1973.

Meetings involving the mineral industry included the Prospectors and Developers Association convention; the Clay Bricks Association; a presentation by Acres Limited on possible underground mining of aggregate; and a conference on the Ontario Aggregate Industry held at the University of Guelph.

A field trip was attended with the Stevens Committee on Mineral Planning Control from Britain. U.J. Vagners attended a course on Ecology of Land Use Planning at the University of Toronto, a course on Management by Objectives, and a seminar on Managing Management Time.

GEOLOGICAL BRANCH ACTIVITIES: In the Central Region, mapping projects were carried out by the Phanerozoic Geology Section. G.J. Burwasser mapped the drift thickness and bedrock topography of the Barrie (NTS 31 D/5) and Orr Lake (NTS 31 D/12) map-areas; he also mapped the Quaternary geology of the western half of the Barrie area (NTS 31 D/5W), the western half of the Orr Lake area (NTS 31 D/12W), and the eastern half of the Nottawasaga area (NTS 41 A/9E). In the Niagara Peninsula, Quaternary geology was mapped by B.H. Feenstra in the Grimsby map-area (NTS 30 M/4). Adjacent to and south of the Grimsby area, P.G. Telford completed mapping of Paleozoic rocks of the Fort Erie, Welland and Dunnville map-areas (NTS 30 L/15W, 30 L/14, 30 L/13). These mapping areas are marked on the enclosed map. J.Z. Fraser of the Phanerozoic Geology Section conducted aggregate resource surveys for the Hamilton-Wentworth Planning Area, Northumberland County, Caledon Township and the Regional Municipality of Durham.

E.B. Freeman of the Geoscience Information Office, Geoservices Section, organized the basic mineral exploration course and the special topics course in Toronto. For the basic course, registration was 263 and attendance averaged 181. For the special topics course, consisting of a series of guest speakers, registration was 96 and attendance averaged 61 in the afternoons and 45 in the evenings. Freeman also presented programs at both Junior Ranger camps in the Central Region and at several Toronto schools, a teachers workshop, a teacher certificate course and a mineral club.

GEOLOGICAL SURVEY OF CANADA ACTIVITIES: The following projects are presently being carried out in Central Region: Quaternary Geology of the Great Lakes by T.W. Anderson; Pleistocene Geology of the Lake Ontario Basin by E.P. Henderson; and Environmental Geology of the Hamilton Urban Area by F. Morin.

MINING ACTIVITY: Central Region accounts for 8 percent of the value of Ontario's mineral output. Industrial minerals are the major product in the Central Region; values of mineral production in 1972 were as follows (information from Mineral Resources Branch, Ontario Division of Mines, 1974):

Clay products	$28,159,647
Stone and cement	$58,115,597
Sand and gravel	$34,616,593
Lime, peat moss, quartz, gypsum	$ 5,307,431
Petroleum and natural gas	$ 910,468

Most of the above values represent a combined total of nearly 300 sand and gravel, clay, and shale active operations as well as 35 to 40 active quarry operations.

Some of the larger companies in Central Region are St. Mary's Cement Company Limited (Bowmanville), St. Lawrence Cement Company Limited (Port Colborne), Canada Crushed and Cut Stone Limited (Dundas), Limestone Quarries Limited (Orillia), Haldimand Quarries and Construction Limited, Walker Brothers Quarries (St. Catharines) as well as numerous others. Clay products are produced by Brampton Brick Limited, Domtar Construction Materials Limited, McFarren F.B. Limited (Streetsville) and Diamond Clay Products Limited (Nelson Township) as well as others.

STAKING AND EXPLORATION ACTIVITY: During 1974, 15 claims were staked in Central Region out of a total of 731 for Eastern Ontario Mining Division. Five claims were staked in Belmont Township during April and May, 1974. Ten claims in Harvey Township were staked together and adjacent to one another in March, 1974. These are the only claims in good standing with no claims being retained from previous years.

A report of a radiometric airborne survey was added to the Regional Geologist's files. The survey covered part of Somerville and Lutterworth Townships in Algonquin Region and also included the northeast corner of Bexley Township which is in Central Region. The survey was dated June 30, 1955 and was carried out by Lundberg Exploration Limited. The report suggested that the south end of Mud Turtle Lake could possibly be underlain by crystalline limestone containing U_3O_8.

ODM MAPS AND REPORTS ISSUED BY THE GEOLOGICAL BRANCH IN 1974:

P.919	Quaternary Geology of the Collingwood-Nottawasaga Area, Southern Ontario (41 A/8, 41 A/9), scale 1:50,000. Geology by G.J. Burwasser and assistants, 1973.
P.924	Bedrock Topography Series of the Collingwood-Nottawasaga Area, Southern Ontario (41 A/8, 41 A/9), scale 1:50,000. Geological compilation by G.J. Burwasser and assistants, 1973.
P.925	Drift Thickness Series of the Collingwood-Nottawasaga Area, Southern Ontario (41 A/8, 41 A/9), scale 1:50,000. Geological compilation by G.J. Burwasser and assistants, 1973.
P.946	Paleozoic Geology of the Dundalk Area, Southern Ontario (41 A/1), scale 1:50,000. Geology by P.G. Telford, I.J. Bond and B.A. Liberty, 1972, 1973.

P.947 Paleozoic Geology of the Orangeville Area, Southern Ontario (40 P/16), scale 1:50,000. Geology by P.G. Telford, I.J. Bond, and B.A. Liberty, 1972, 1973.

P.952 Paleozoic Geology of the Bolton Area, Southern Ontario (30 M/13), scale 1:50,000. Geology by P.G. Telford, I.J. Bond and B.A. Liberty, 1972, 1973.

P.953 Paleozoic Geology of the Brampton Area, Southern Ontario (30 M/12), scale 1:50,000. Geology by P.G. Telford, I.J. Bond and B.A. Liberty, 1972, 1973.

P.954 Paleozoic Geology of the Collingwood-Nottawasaga Area, Southern Ontario (41 A/8, 41 A/9), scale 1:50,000. Geology by P.G. Telford, I.J. Bond, B.A. Liberty, and assistants 1972, 1973.

P.955 Paleozoic Geology of the Guelph Area, Southern Ontario (40 P/9), scale 1:50,000. Geology by P.G. Telford and D. Baker, 1973.

P.975 Quaternary Geology of the Orr Lake Area (Western Half)-Nottawasaga Area (Eastern Half), Southern Ontario (31 D/12W, 41 A/9E), scale 1:50,000. Geology by G.J. Burwasser, S.T. Boyd, and assistants, 1974.

P.976 Bedrock Topography Series, Orr Lake Area, Southern Ontario (31 D/12), scale 1:50,000. Geological compilation by G.J. Burwasser, and M.J. Ford, 1974.

P.977 Drift Thickness Series, Orr Lake Area, Southern Ontario (31 D/12), scale 1:50,000. Geological compilation, G.J. Burwasser and M.J. Ford, 1974.

P.978 Quaternary Geology of the Barrie Area (Western Half), Southern Ontario (31 D/5W), scale 1:50,000. Geology by G.J. Burwasser, B.D. Cairns, and assistants, 1974.

P.979 Bedrock Topography of the Barrie Area, Southern Ontario (31 D/5), scale 1:50,000. Geological compilation by G.J. Burwasser and M.J. Ford, 1974.

P.980 Drift Thickness Series of the Barrie Area, Southern Ontario (31 D/5), scale 1:50,000. Geological compilation by G.J. Burwasser and M.J. Ford, 1974.

P.981	Quaternary Geology of the Dunnville Area, Southern Ontario (30 L/13), scale 1:50,000. Geology by B.H. Feenstra and assistants, 1973.
Map 2229	Index to Aeromagnetic Maps of Ontario, revised 1974. Scale, 1 inch to 30 miles or 1:1,900,800.
Map 2281	Quaternary Geology, Woodstock, Southern Ontario (40 P/2), by W.R. Cowan and assistants, 1969, 1970. Scale 1 inch to 1 mile or 1:63,360.
Map 2282	Granular Resources, Woodstock, Southern Ontario (40 P/2), by W.R. Cowan and assistants, 1969, 1970. Scale, 1 inch to 1 mile or 1:63,360.
Map 2310	Ontario Mineral Map, compilation by the Geological Branch, Ontario Division of Mines, revised 1974. Scale, 1 inch to 25 miles or 1:1,584,000.
MP57	Annual Report of Resident Geologists' Section, Geological Branch, 1973. Edited by C.R. Kustra, 192p., 22 figures, 17 tables.
MP59	Summary of Field Work, 1974, by the Geological Branch. Edited by V.G. Milne, D.F. Hewitt, and K.D. Card, 206p., plus various figures and key maps.
OFR5100	A Study for Ontario Division of Mines on the Aggregate Resources of Waterloo/South Wellington Counties Towards Effective Planning for the Aggregate Industry (40 P/7, 40 P/8, 40 P/9, 40 P/10) by C.R. Bryant and A.G. McLellan, 246 pages, 27 figures, and 21 tables.
OFR5103	Selective Retrieval from the Canadian Index to Geoscience Data on (1) Assessment Work (1972, 1973) Filed with the Ontario Division of Mines and (2) Reports Received under Ontario's Mineral Exploration Assistance Program (MEAP) by H.A. Groen.
OFR5104	Ontario Occurrences of Float, Placer Gold, Indicator Minerals for Kimberlite, etc., by S.A. Ferguson, 225p., 6 figures.
OFR5108	Quaternary Geology of the Orangeville Area, Southern Ontario (40 P/16), by W.R. Cowan, 173p., 12 figures, 19 tables, 17 photos (xerox copies) and 1 map, P.848, scale 1:50,000.

OFR5114	Mineral Exploration Assistance Program (MEAP), Fiscal Years 1971-72, 1972-73, and 1973-74, by S.A. Ferguson, E. Bayer and S.C. Sun, 1974, 70p.
1973 Review	Ontario Mineral Review 1973, 136p. with various tables, figures and photos.

OTHER ONTARIO MINISTRY OF NATURAL RESOURCES PUBLICATIONS ISSUED IN 1974:

Paper 73-1	Oil and Gas Exploration Drilling and Production Summary, 1972; Petroleum Resources Section, 146p. (published 1974).
Mineral Aggregate Study	Mineral Aggregate Study, Central Ontario Planning Region, prepared for the Ontario Ministry of Natural Resources by Proctor and Redfern Limited, Consulting Engineers and Planners, 11 chapters, 6 appendixes, illustrations, supplement.
	Toward the year 2000: A Study of Mineral Aggregates in Central Ontario, Prepared for the Ontario Ministry of Natural Resources by Proctor and Redfern Limited, Consulting Engineers and Planners. A Summary Report which is a supplement to the Mineral Aggregate Study or available separately.
	Report of the Advisory Committee to the Minister of Natural Resources on the Revision of the Mining Act, 40p.

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Paper 73-7	Geological Survey of Canada, Radiocarbon Dates XIII, by J.A. Lowdon and W. Blake, Jr., 61p. (published 1973, released 1974).
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Paper 74-1 Part A	Report of Activities, Part A: April to October 1973, 396p. (published 1974).

Paper 74-1 Part B	Report of Activities, Part B: November 1973 to March 1974, 297p. (published 1974).
Paper 74-4	Abstracts of Publications in Scientific Journals by Officers of the Geological Survey of Canada, April 1973 to March 1974, 30p. (published 1974).
Paper 74-5	National Advisory Committee on Research on the Geological Sciences-Current Research in the Geological Sciences in Canada, 1973-74, compiled by T.E. Bolton, 95p. (published 1974).
Catalogue No.M41-4/5	Catalogue of Type Invertebrate Fossils of the Geological Survey of Canada, Volume V, by T.E. Bolton, 396p. (published 1974).
Map 1-1974	Scientific Program, 1974-75 (includes list of projects, published 1974).
Map 900A	Principal Mineral Areas of Canada, 24th edition (published 1974). Also available in French.
Index Sheet 31	Index Sheet NTS 31, showing published geological maps, information to March 31, 1974. Lat. 44°00'-48°00', Long. 72°00'-80°00' (published 1974).
O.F.202	Listing of Selected ERTS Images. A listing of 600 quality satelite images. Enquiries for information on specific NTS areas may be made to the librarian at the Geological Survey of Canada, 601 Booth St., Ottawa, K1A 0E8. Copies of the open file will not be available for sale.

1974 REPORT
# of the
SOUTHWESTERN REGIONAL GEOLOGIST

by

R.G. Bryant and S.J. Gibson

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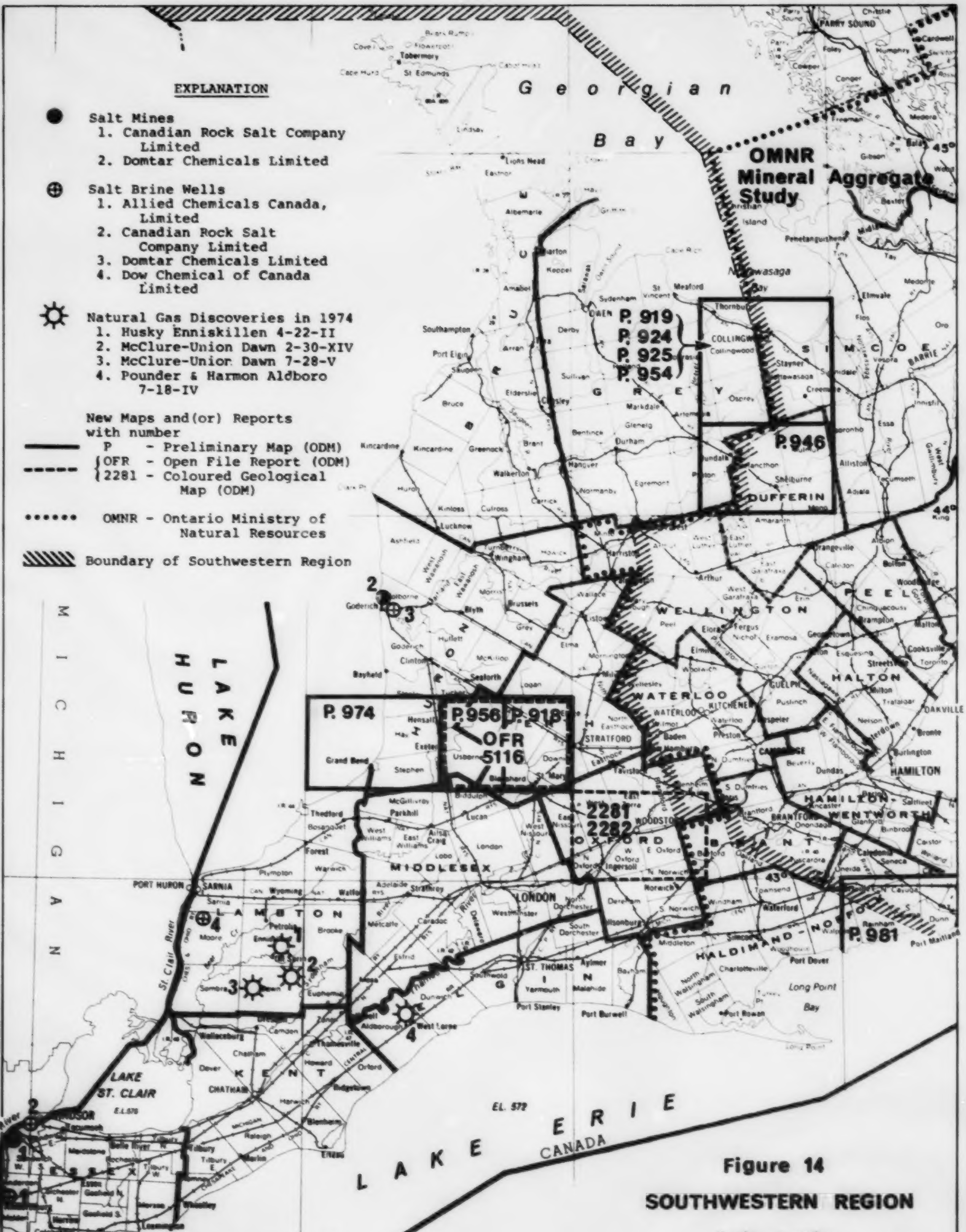
EXPLANATION
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1. Canadian Rock Salt Company Limited
2. Domtar Chemicals Limited
⊕ Salt Brine Wells
1. Allied Chemicals Canada, Limited
2. Canadian Rock Salt Company Limited
3. Domtar Chemicals Limited
4. Dow Chemical of Canada Limited
☼ Natural Gas Discoveries in 1974
1. Husky Enniskillen 4-22-II
2. McClure-Union Dawn 2-30-XIV
3. McClure-Union Dawn 7-28-V
4. Pounder & Harmon Aldboro 7-18-IV
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OFR - Open File Report (ODM)
2281 - Coloured Geological Map (ODM)
OMNR - Ontario Ministry of Natural Resources
Boundary of Southwestern Region
Georgian Bay
OMNR Mineral Aggregate Study
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LAKE HURON
MICHIGAN
LAKE ST. CLAIR
LAKE ERIE
CANADA
SIMCOE
GREY
DUFFERIN
PEEL
WELLINGTON
WATERLOO
HALTON
HAMILTON-WENTWORTH
OXFORD
BRANT
MIDDLESEX
LAMBTON
KENT
ESSEX
ELGIN
HALDIMAND-NORFOLK
Long Point Bay
EL. 572
45°
44°
43°
42°
83°
82°
81°
80°
Scale of Miles
0
25
50

Figure 14

SOUTHWESTERN REGION

1974 REPORT

# of the

SOUTHWESTERN REGIONAL GEOLOGIST

by

R.G. Bryant[1] and S.J. Gibson[2]

INTRODUCTION: The regional geologist position for the Southwestern Region changed midway through the 1974 year with R.G. Bryant assuming the responsibilities from R.J. Beards, who subsequently resigned from the Ministry in early 1975. P.E. Burns, Geological Assistant, also tendered his resignation during 1974.

R.G. Bryant is also the Senior Petroleum Resources Officer for the Petroleum Resources Section of the Mineral Resources Branch and he is Chief Inspector for all drilling and production of oil and gas in the Province.

The main functions of this dual role are liaison with oil and gas industry and the Petroleum Resources Section, with responsibilities for a wide range of activities associated with the exploration, drilling and production of oil and gas in Ontario. Evaluation of producing and prospective oil and gas fields is accomplished by the analyses of all geological and related data collected by the Government or submitted by industry under authority of the Petroleum Resources Act, with the eventual publication of geological and engineering reports and maps.

A complete and thorough examination is made of all geological, geophysical, and geochemical documents submitted to the Ontario Energy Board and the Ministry in support of applications for natural gas storage, secondary recovery oil, subsurface disposal of waste effluents, and produced water spacing and unitization.

Close liaison is maintained with the Ministry of Housing in reviewing its policies regarding regional land use planning.

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[2] Executive Assistant to the Director, Geological Branch.

There is coordination and overview of the resource programs with the Petroleum Resources Laboratory in London. Geological and engineering data are collected for all oil and gas wells in the Province of Ontario and such data are used in the preparation of reports and maps to encourage the proper and equitable development of Ontario's petroleum reserves.

At the 13th annual conference of the Ontario Petroleum Institute held in Toronto, a paper was given by R.B. Hutt, Chief Geologist, Petroleum Resources Laboratory, London, entitled "Geology and Hydrocarbon Potential East Shore of Lake Huron".

GEOLOGICAL BRANCH ACTIVITIES: Several field projects were carried out by the Phanerozoic Geology Section of the Geological Branch. W.R. Cowan completed mapping the Quaternary geology of the Wingham map-area (NTS 40 P/14) and began the mapping of the Lucknow map-area (NTS 40 P/13). Extensive deposits of sand and gravel occur in this area. A.J. Cooper completed mapping the Quaternary geology of the Grand Bend map-area (NTS 40 P/5) and began the mapping of the Parkhill map-area (NTS 40 P/4). Gravel resources in this area are sufficient to meet most local demands.

P.G. Telford completed the Paleozoic mapping of the Fort Erie, Welland and Dunnville areas. An extensive crushed stone industry flourishes in the part of this area which falls in the Central Region. J.Z. Fraser carried out an aggregate resource study of London Township to assist in land use planning. Short reports of these projects have been published in "Summary of Field Work, 1974, by the Geological Branch" (ODM report MP59).

Basic mineral exploration classes were conducted by E.B. Freeman of the Geoscience Information Office, Geoservices Section in London and Waterford. R.B. Hutt of the Petroleum Resources Section of the Ministry, and A. Dreimanis of the University of Western Ontario were guest lecturers at the London classes. Attendance averaged 150 with registration of 199. At Waterford, attendance averaged 65 with a registration of 92. E.B. Freeman also presented a short geology program at Emmet Lake Junior Ranger camp.

OIL AND NATURAL GAS: In view of the fact that nearly all of the petroleum and natural gas exploration and development in southern Ontario occurs in the Southwestern Region (a minor portion in the extreme west end of the Central Region) the following is a resume of oil and gas developments in southern Ontario.

The production of oil and natural gas in southwestern Ontario decreased sharply in 1974. A total of slightly over 7.3 billion cubic feet of gas and 737,000 barrels of oil was produced. This represents a decrease of 25 percent in gas production and 9 percent in oil production from 1973.

During the past year, 79 exploratory wells and 61 development wells were drilled, an increase of 52 percent and 9 percent respectively over the previous year. An additional 30 wells were completed in the "other" category. These consisted of eight wells for brine production, one well for waste disposal, four for petroleum products storage, three gas storage wells and 14 wells for stratigraphic tests. This category increased 67 percent over the previous year.

Drilling for natural gas offshore in Lake Erie increased 33 percent from the previous year with 53 wells being completed. Of the 53 wells drilled, 13 exploratory gas wells were discovered in 27 attempts and 21 development gas wells were successful out of 26 tests. This corresponds to a success ratio of 48 percent and 81 percent respectively.

Approximately 70 percent to 75 percent of all gas production was derived from Lake Erie during 1974.

Three gas-bearing, Silurian pinnacle reefs in Lambton County and an Ordovician (Trenton) gas discovery in Aldborough Township, Elgin County were the most significant discoveries in 1974 (see Figure 14). Additional follow-up drilling is presently underway.

For additional information, see "Other Ontario Ministry of Natural Resources Publications Issued in 1974".

MINING ACTIVITY: Salt is mined by Domtar Chemicals Limited at Goderich, Ontario and by the Canadian Rock Salt Company Limited at Windsor.

Salt is also produced from brine wells by the two previously mentioned companies and also by Allied Chemicals Canada, Limited at Amherstburg and by Dow Chemical of Canada Limited at Sarnia. Additional development drilling was initiated by all of these companies; Domtar Chemicals Limited drilled one well, Allied Chemicals Canada, Limited two wells, and Dow Chemical of Canada Limited a total of four wells.

PROVINCIAL REGULATIONS: Three additional areas were designated under the Pits and Quarry Control Act 1971. Licences for all pits and quarries are now required for the Townships of Delaware and North Dorchester in the London area and for Pelee Island. An application for the required licence must be accompanied by a detailed site plan which includes a pit development plan and progressive and ultimate rehabilitation plans. An annual security deposit based on the previous year's production is required to ensure rehabilitation.

ODM Maps and Reports Issued by the Geological Branch in 1974:

P.918	Quaternary Geology of the St. Marys Area, Southern Ontario (40 P/6E) Geology by P.F. Karrow and J.F. Apon, 1973. Scale 1:50,000.
P.919	Quaternary Geology of the Collingwood-Nottawasaga Area, Southern Ontario, (41 A/8, 41 A/9). Geology by G.J. Burwasser and assistants, 1973. Scale 1:50,000.
P.924	Bedrock Topography Series of the Collingwood-Nottawasaga Area, Southern Ontario (41 A/8, 41 A/9). Geological compilation by G.J. Burwasser and assistants, 1973. Scale 1:50,000.
P.925	Drift Thickness Series of the Collingwood-Nottawasaga Area, Southern Ontario, (41 A/8, 41 A/9). Geological compilation by G.J. Burwasser and assistants, 1973. Scale 1:50,000.
P.946	Paleozoic Geology of the Dundalk Area, Southern Ontario (41 A/1). Geology by P.G. Telford, I.J. Bond and B.A. Liberty, 1972, 1973. Scale 1:50,000.
P.954	Paleozoic Geology of the Collingwood-Nottawasaga Area, Southern Ontario (41 A/8, 41 A/9). Geology by P.G. Telford, I.J. Bond, B.A. Liberty, and assistants 1972, 1973. Scale 1:50,000.
P.956	Quaternary Geology of the St. Marys Area (Western Half) Southern Ontario (40 P/6W). Geology by P.F. Karrow with the assistance of J.F. Apon, F. Hutnik, G.M. Pucovsky, and A.J. Ferguson, 1973, 1974. Scale 1:50,000.
P.974	Quaternary Geology of the Grand Bend Area, Southern Ontario (40 P/5). Geology by A.J. Cooper, Jack Clue, and assistants, 1974. Scale 1:50,000.

P.981	Quaternary Geology of the Dunnville Area, Southern Ontario (30 L/13). Geology by B.H. Feenstra and assistants, 1973. Scale 1:50,000.
Map 2229	Index to Aeromagnetic Maps of Ontario, Revised 1974. Scale 1 inch to 30 miles, or 1:1,900,800.
Map 2281	Quaternary Geology, Woodstock, Southern Ontario (40 P/2). Geology by W.R. Cowan and assistants, 1969, 1970. Scale 1 inch to 1 mile or 1:63,360.
Map 2282	Granular Resources, Woodstock, Southern Ontario (40 P/2). Geology by W.R. Cowan and assistants, 1969, 1970. Scale 1 inch to 1 mile or 1:63,360.
Map 2310	Ontario Mineral Map, compilation by the Geological Branch, Ontario Division of Mines, Revised 1974. Scale 1 inch to 25 miles or 1:1,584,000.
OFR5104	Ontario Occurrences of Float, Placer Gold, Indicator Minerals for Kimberlite, etc. by S.A. Ferguson, 225p., 6 figures.
OFR5116	Quaternary Geology of the St. Marys Area, Southern Ontario (40 P/6) by P.F. Karrow, 1974; 130p., 6 tables, 19 figures (includes xerox copies of 12 photos) and Maps P.918 and P.956, scale 1:50,000.
MP57	Annual Report of Resident Geologists' Section, Geological Branch, 1973. Edited by C.R. Kustra, 192p., 22 figures, 17 tables.
MP59	Summary of Field Work, 1974, by the Geological Branch. Edited by V.G. Milne, D.F. Hewitt, and K.D. Card, 206p. plus various figures and key maps.

OTHER ONTARIO MINISTRY OF NATURAL RESOURCES PUBLICATIONS ISSUED IN 1974:

Paper 73-1	Oil and Gas Exploration Drilling and Production Summary, 1972; Petroleum Resources Section, 146p. (published 1974).
Mineral Aggregate Study	Mineral Aggregate Study, Central Ontario Planning Region, prepared for the Ontario Ministry of Natural Resources by Proctor and Redfern Limited, Consulting Engineers and Planners, 11 chapters, 6 appendixes, illustrations, supplement.

	Toward the Year 2000: A Study of Mineral Aggregates in Central Ontario, prepared for the Ontario Ministry of Natural Resources by Proctor and Redfern Limited, Consulting Engineers and Planners. A Summary Report which is a supplement to the Mineral Aggregate Study or available separately.
	Report of the Advisory Committee to the Minister of Natural Resources on the Revision of the Mining Act, 40p.
1973 Review	Ontario Mineral Review 1973, 136p., with various tables, figures, and photographs.

MAPS AND REPORTS ISSUED BY THE GEOLOGICAL SURVEY OF CANADA IN 1974:

Paper 72-36	Identification of Petroleum Source Rocks using Hydrocarbon Gas and Organic Carbon Content, by L.R. Snowdon and R.G. McCrossan, 12p., figures (published 1973, released 1974).
Paper 73-5	National Advisory Committee on Research in the Geological Sciences. Current Research in the Geological Sciences in Canada, 1972-73, compiled by T.E. Bolton, 193p. (published 1973, released 1974).
Paper 73-7	Geological Survey of Canada, Radiocarbon Dates XIII, by J.A. Lowdon and W. Blake, Jr., 61p. (published 1973, released 1974).
Paper 74-4	Abstracts of Publications in Scientific Journals by Officers of the Geological Survey of Canada, April 1973 to March 1974, 30p. (published 1974).
Paper 74-5	National Advisory Committee on Research in the Geological Sciences-Current Research in the Geological Sciences in Canada, 1973-74, compiled by T.E. Bolton, 95p. (published 1974).
Catalogue No.M41-4/5	Catalogue of Type Invertebrate Fossils of the Geological Survey of Canada, Volume V, by T.E. Bolton, 396p. (published 1974).
Map 1-1974	Scientific Program, 1974-75 (includes list of projects, published 1974).
Map 900A	Principal Mineral Areas of Canada, 24th edition (published 1974). Also available in French.

Index Sheet 41	Index Sheet NTS 41, showing published geological maps, information to July 3, 1973. Lat. 44°00'-48°00', Long. 80°00'-88°00' (published 1973, released 1974).
O.F. 202	Listing of Selected ERTS Images. A listing of 600 quality satellite images. Enquiries for information on specific NTS areas may be made to the librarian at the Geological Survey of Canada, 601 Booth St., Ottawa, K1A 0E8. Copies of the open file will not be available for sale.